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TECHNICAL REPORT:

Introducing International Approaches to Safe Motherhood in Zhezkazgan: Results of a Pilot Project in Kazakhstan

**April, 2005
Almaty, Kazakhstan**



ЗдравПлюс / ZdravPlus

**ENSURING ACCESS TO
QUALITY HEALTH CARE
IN CENTRAL ASIA**

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The views of the author(s) expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

I. Dedication



This report is dedicated to Dr. Serik Tuleybaev, Head Doctor of the Zhezkazgan Maternity Hospital and Chief Gynecologist of the Zhezkazgan City Health Department, who died suddenly on December 3, 2004. Dr. Tuleybaev pioneered international approaches to Safe Motherhood in Kazakhstan, even before the Government endorsed these approaches. He serves as a model to all in his commitment to the women of Zhezkazgan, his enthusiasm for updating Safe Motherhood practices in the city, the encouragement he provided to staff in the Maternity Hospital and Family Group Practices as they sought to follow the new practices, his willingness to do what's right and to convince others to follow his lead. The remarkable results of his work are evident in this report. His premature death is mourned by many who recognize his extraordinary work and admire his leadership and courage.

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The results described in this report would not have been possible without the strong leadership and commitment to implementing the new international approaches demonstrated by Dr. Serik Tuleybaev, Head Doctor of the Zhezkazgan Maternity House and Chief Gynecologist of the City Health Department. His critical role relied on the backing and support of Dr. Kanat Yermekbaev, Head of Karaganda Oblast Health Department; Dr. Gul Omarova, Chief Gynecologist of Karaganda Oblast Health Department; and Kenzhetay Kabykenov, Head of Zhezkazgan City Health Department. The willingness of Dr. Tanatar Zhanaev, Chief of the Sanitary and Epidemiological Surveillance Department in Zhezkazgan, not to enforce antiquated infection prevention and control policies was a prerequisite without which the program could not have happened. Dr. Alma Makenbaeva, President of the Association of Family Physicians of Zhezkazgan (AFPZ), also played a key role in encouraging the Family Group Practices (FGPs) in the city—and particularly the ob-gyns—to assume a broader scope of services by integrating prenatal care into their ever-expanding scope of services. And Dr. Daniel Tazhigulova, ob-gyn expert for AFPZ, provided invaluable organizational support and inspiration.

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Some of the most important contributions were made by a large number of anonymous individuals. Those who deserve much of the credit for the work described here are the ob-gyns, midwives, neonatologists, nurses and other health workers on the front lines in the Maternity Hospital and FGPs in Zhezkazgan. The progress they made in changing their attitudes and practices in a short period of time is quite remarkable and holds out great promise for the future. Hopefully, their reward is to experience women's and families' appreciation of the improved services on a day-to-day basis.

Last—and most important of all—without the funding provided by USAID through the ZdravPlus project, none of this work could have been undertaken. All those involved in this pilot project are profoundly grateful to USAID for supporting a landmark contribution toward better quality, more accessible and efficient health services for women and families in Kazakhstan. The commitment of Mary Skarie, former Cognizant Technical Officer for the project, merits special recognition. Her profound interest and endless encouragement for this activity provided a special incentive to take on the challenges and demonstrate results.

III. Acronyms and Abbreviations

AFPZ	Association of Family Physicians of Zhezkazgan
EBM	Evidence-Based Medicine
EOC	Essential Obstetric Care
FGD	Focus Group Discussion
FGP	Family Group Practice
ICD-10	International Classification of Diseases, 10th edition
IEC	Information, Education and Communication
IMPAC	Integrated Management of Pregnancy and Childbirth
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MOH	Ministry of Health
MPS	Making Pregnancy Safer
NICU	Neonatal Intensive Care Unit
Ob-Gyn	Obstetrician-Gynecologist
OPD	Outpatient Department
PEPC	Promoting Effective Perinatal Care
PHC	Primary Health Care
SES	Sanitary and Epidemiological Surveillance Department
SVA	<i>Semeinaia Vrachebnii Ambulatoria</i> (outpatient clinic)
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WHO/Europe	World Health Organization/Regional Office for Europe
WIN	Women and Infant Health Project (Russia)

IV. Abstract

Until recently, pregnancy, delivery and newborn care were highly-medicalized experiences for most women in Zhezkazgan City, Karaganda Oblast, as in other parts of Kazakhstan. A 2002 assessment undertaken for the USAID-funded ZdravPlus project by a WHO consultant revealed that health care providers viewed 85-90 percent of pregnancies to be “at-risk,” that care was over-medicalized, that most prenatal care was provided in the hospital outpatient department, rather than in primary health care facilities, and that unwarranted hospitalizations during the prenatal period were common.

ZdravPlus joined with WHO/Europe to introduce less medicalized, more woman- and family-centered care, based on evidence-based approaches. A number of interventions were provided and achieved significant progress toward the principles recommended by WHO, including demedicalizing care, using appropriate technologies, moving toward regionalization (the rational distribution of medical services in a geographic area), and making care multi-disciplinary, in addition to using a holistic, family centered and culturally appropriate approach which involves women in decision-making. Among the key results were the integration of prenatal care into primary health care; cutting the average number of prenatal visits per woman from 12 to six; declines in hospitalizations during the prenatal period from 866/1,000 deliveries to 695 – which were accompanied by a shorter average length of stay; less use of ultrasound and non-evidence-based medications; and shorter hospital stays for delivery. The shift from a sterile environment, where family members were not allowed, to a simply “clean” environment in the hospital, coupled with individual rooms for women, made it easier for family members and friends to visit and, in almost eight out of 10 cases, a partner supported the woman during childbirth. After project implementation, almost all women said they were satisfied with the information they had received about pregnancy and childbirth and 97 percent of new mothers said they had chosen their delivery position themselves, as compared to only 19 percent a year earlier. Women’s satisfaction with care also reached very high levels, with 98 percent of new mothers saying they were completely satisfied and two percent satisfied.

The project also demonstrated cost savings for the hospital and indicated the potential for other savings, at the same time as improving the quality of care. Conducted in a pilot site where health reforms are under way, the Safe Motherhood project demonstrated the synergies between health financing reforms and reforms in the content of clinical care.

V. Executive Summary

Until recently, pregnancy, delivery and newborn care were a highly-medicalized experience for most women in Zhezkazgan City, in Karaganda Oblast, as in other parts of Kazakhstan. A 2002 assessment undertaken for the USAID-funded ZdravPlus/Central Asia Quality Health Project by a World Health Organization (WHO) consultant revealed that health care providers viewed 85-90 percent of pregnancies to be “at-risk” and considered the main purpose of prenatal care to be screening for pathologies and referring when problems were found. Already required to make large numbers of prenatal visits, even for uncomplicated pregnancies, this highly medical approach meant that women were referred to several specialists, given various medications, went through batteries of laboratory tests and screenings, and about half were hospitalized during the prenatal period. Delivery and newborn care followed similar patterns. The majority of pregnant women expressed fear about labor and delivery—fear for their own health and that of their baby. Both men and women indicated that they would like more information about pregnancy and delivery, and a more caring attitude from midwives and doctors during delivery to overcome such fears. A shift was needed toward less medicalized, more woman- and family-centered care and toward evidence-based approaches.

Working with authorities in Zhezkazgan, who were eager to try new ways to improve pregnancy outcomes, ZdravPlus joined with WHO/Europe to introduce modern, evidence-based approaches to prenatal, delivery and newborn care in the maternity hospital and outpatient FGPs, following WHO’s Making Pregnancy Safer/Promoting Effective Perinatal Care (MPS/PEPC) program. This would be a pilot project for all of Kazakhstan. The project had twin-aims: to improve the quality of perinatal care and also to demonstrate the cost-effectiveness of these approaches.

Key interventions were policy dialogue with local authorities; focus group discussions with women and their families to determine their perspectives on prenatal, delivery and newborn care; three different training courses for ob-gyns and midwives in the maternity hospital, for neonatologists and nurses in the hospital, and for ob-gyns and midwives working in outpatient FGPs; follow-up visits to providers at their worksites to monitor and support introduction of the new practices; education for women and their families about how to care for themselves during pregnancy and what to expect during the prenatal period and delivery; a study tour to Lithuania; and limited amounts of essential equipment for the maternity hospital.

To assess the impact of the pilot project, several approaches were used. First, data from the hospital case database were analyzed to examine trends in hospitalization. Second, pregnant women and new mothers were interviewed in surveys before the pilot project and about a year later. And third, for some indicators, official statistics from Zhezkazgan and from the maternity hospital were used. All of the evaluation data compared the pre-implementation period with the first year of implementation: in most cases, July 2001 to June 2002 was compared with July 2002 to June 2003.

The pilot project made significant contributions to demedicalizing care. The average number of prenatal visits per woman fell dramatically from 12 to six, although the percentage of pregnancies considered “normal” increased only from 12 to 21 percent—still a very low proportion relative to WHO’s guideline of around 85 percent, but an improvement nonetheless. Even so, 99 percent of women were referred to an internist—probably because of prikazes requiring that all pregnant women see an internist—and on average each woman was referred to 2.4 specialists. There were some encouraging declines in prescription of all monitored medications. Most impressive of all, there were significant declines in hospitalization of women during the prenatal period for 11 monitored conditions, from 866/1,000 deliveries to 695—a 19 percent drop—and the average length of stay for these conditions fell from eight to 6.7 days.

In terms of hospital care for delivery, even though the Zhezkazgan Maternity Hospital had a caesarian rate in the normal range before the pilot project started, caesarian births fell still further,

from 9.7 percent of deliveries to 8.4 percent. There were also fewer episiotomies and other invasive procedures, such as “cervical examination” after childbirth. Consistent with the lower levels of complicated births, the average length of stay in the hospital for childbirth declined from 4.1 to 3.7 days.

The demedicalization of care was accompanied by the use of more appropriate technologies. The percentage of women having two or more ultrasounds fell by more than half, while the percentage having had one ultrasound increased quite significantly—a positive trend, since screening in the first half of pregnancy has some limited benefits—and the proportion with no ultrasound went from 12 to 26 percent. During hospitalization for delivery, there was also less use of ultrasound, with 80 percent of new mothers reporting not having one in 2003. There were large drops in the numbers of laboratory tests performed at the hospital: for example, the number of vaginal smears fell from 1,023 to just 24. And unnecessary procedures such as the administration of analgesic drugs, shaving pubic hair and enemas before childbirth were discontinued.

At the same time, some simple, low-cost approaches known to improve outcomes were introduced. The partogram—a previously unknown “tool” in Kazakhstan—was used in about three out of four cases to manage labor and delivery, potentially contributing to fewer cases of fetal asphyxia. Significant numbers of women had a partner with them during labor and delivery—rising from 16 percent in 2002 to 79 percent the following year—and all found it helpful. Women also began to choose their own delivery positions. While, prior to the pilot project, 81 percent of women gave birth flat on their backs, which makes delivery more difficult, that fell to 47 percent and virtually all women reported that they themselves had chosen their delivery position. The hospital moved from a sterile environment where visitors were not allowed to one which is simply “clean,” discontinuing the disinfection of rooms, wards, furniture and bedclothes. Hospital staff were surprised that this merely “clean” environment did not result in more complications after childbirth.

The underpinning of a regionalized system of care is the provision of good access to care, through primary health care facilities, close to where people live. The situation in Zhezkazgan prior to the project, where prenatal care was concentrated in the hospital outpatient department, was inconsistent with good access to care. One of the major changes brought about by the pilot project was to shift most prenatal care from the hospital to the FGPs, effectively integrating it with other primary health care services provided at the community level. While only 19 percent of women said they had obtained their prenatal care from FGPs before the project, 66 percent did so after project implementation.

In Kazakhstan, which has a surplus of doctors, including specialists, it is difficult to shift care toward family doctors, midwives and nurses. A more realistic objective is to foster better collaboration between the different types of health workers. The pilot project sought to encourage such interdisciplinary collaboration by training doctors and midlevel staff, such as nurses and midwives, to work in teams—a highly unusual approach in Central Asia. While the pilot project did not provide evidence that care actually shifted toward midlevel personnel, interviews with doctors at the hospital illustrated that they recognized that midlevel staff could play a larger role than that previously accorded to them.

Pregnancy and childbirth are normal events and care should center on informing, motivating and involving the family and the community in ensuring care and support. Even before the project, almost all women reported being given information about pregnancy and childbirth and, after project implementation, virtually all women stated that they were satisfied with the amount of information they received. Nevertheless, there is room for improvement in terms of giving women information about physical activity, sexual activity, smoking and contraception. A major priority, though, is to inform women and their families of the warning signs during pregnancy, which were not well known to women and, in certain cases, can make the difference between life and death.

The maternity hospital became far more family-centered once the pilot project was implemented. Almost nine out of 10 women had their own room for delivery, rather than having to share, as in the past. The shift from a sterile environment to a simply “clean” environment, coupled with individual rooms, made it easier for family members and friends to visit and support the woman. A companion was present during labor and/or delivery in almost eight out of 10 cases, which all the women found helpful.

A variety of practices that promote bonding between mother and baby, and confer important health benefits on both, gained ground. All the new mothers said that they were allowed to hold their babies immediately after birth and 97 percent had skin-to-skin contact. Almost all mothers were advised to breastfeed the baby right after birth, and to feed the baby on demand rather than on a fixed schedule.

The project promoted women’s decision-making by giving them information about pregnancy and delivery and, after project implementation, almost all women said they were satisfied with the information they had received. A key element of the information given was to empower them to choose their delivery position, effectively putting them in charge of childbirth, rather than being passive participants in a process managed by health workers. Once the pilot project was implemented, 97 percent of new mothers said they had chosen their delivery position themselves, as compared to only 19 percent a year earlier.

Women were more likely to report being treated with respect by health workers after project implementation and their overall level of satisfaction was high. Ninety-eight percent of women were completely satisfied or satisfied with prenatal care. And satisfaction was even higher with hospital care, with 98 percent of new mothers saying they were completely satisfied and two percent satisfied.

The implementation of the Safe Motherhood pilot project in Zhezkazgan also demonstrated the potential for significant improvement in resource-efficiency at the Zhezkazgan Maternity Hospital, as well as in the overall health system. Demonstrating a reduction in both the number of hospital admissions and average length of stay for 11 monitored prenatal conditions speaks of the ability to positively influence the way certain clinical cases are treated, which in turn leads to an improvement in system efficiency and a reduction in unnecessary costs. The cost savings of this reduction in hospitalizations are estimated to be 13 percent of the overall costs of the 11 monitored conditions in the pre-implementation period. This is a significant cost savings resulting from the implementation of the Safe Motherhood program. While in the past, the hospital would have been penalized for a reduction in hospitalizations by receiving a smaller budget, because of new hospital payment systems being introduced in Kazakhstan, this did not occur. Rather, the hospital received an 11 percent increase in budget funding for the monitored conditions, indicating that facilities are able to implement these changes without loss to their overall budget. This then allows them to reinvest the savings in an area of hospital operations where they are needed.

While the financing systems in Kazakhstan are still in transition, the results of the Safe Motherhood pilot indicate that the introduction of reforms in the content of clinical care, designed to improve the quality of care through international, evidence-based approaches go hand-in-hand with the introduction of new hospital payment systems. Together, the advancement of health financing systems and the introduction of programs such as Safe Motherhood have a synergistic effect, promoting higher quality, more efficient and equitable care, while allowing for sustained reinvestment of cost savings to those areas of the health system that need them the most.

VI. Introduction

In August 2002, the ZdravPlus/Central Asia Quality Health Project initiated a pilot project to improve the quality of prenatal, delivery and newborn care in the cities of Zhezkazgan and Satpaev in Kazakhstan's Karaganda Oblast. ZdravPlus is a health reform project, supported by the U.S. Agency for International Development (USAID), which assists five Central Asian countries in providing effective and efficient health services to the population through technical assistance to improve quality of care, strengthen the financing systems and management of health services, and enhance the population's involvement in health care decisions. In a fragmented health system, dominated by hospitals and specialty care, with separate vertical systems for different specialties, ZdravPlus seeks to bring improved health services closer to the population by strengthening primary health care. New Family Group Practices (FGPs) bring together a range of basic health services for the whole population, instead of women having to go to one facility, children to another, men to yet another and persons with certain diseases to additional specialized centers. They also bring care closer to where people live.

The pilot project was based on modern principles of Making Pregnancy Safer/Promoting Effective Perinatal Care (MPS/PEPC), as recommended by the World Health Organization (WHO) and designed within the framework of the global MPS Initiative. WHO/Europe launched the PEPC program in 2000 to promote appropriate technology for birth, neonatal care and breastfeeding through a holistic approach. In the European region, PEPC has been integrated into the MPS initiative and implements the MPS global manuals Integrated Management of Pregnancy and Childbirth (IMPAC), along with specific manuals prepared for the region. MPS/PEPC focuses on pregnancy, birth and the crucial perinatal period (from 22 weeks of gestation to seven days after birth), and on the role that primary health care can play. To do this, MPS/PEPC places special emphasis on promoting improvements in three areas: quality of care, health service development and community and family involvement. MPS/PEPC promotes the use of appropriate evidenced-based technologies; aims at making perinatal care safely demedicalized, multidisciplinary, regionalized and based on an effective referral system. It is holistic, family-centered, involves women and families in decision-making, and aims to be culturally appropriate. This approach is practiced successfully in many countries—both developed and developing.

Zhezkazgan and Satpaev, where the pilot project was conducted, are set in the middle of the Kazakh steppe, in Karaganda Oblast. Zhezkazgan is a typical mining town with a population of 103,000 and Satpaev is less than an hour's drive away, with a population of 73,300, supported mainly by copper mining. What is unusual in these cities is that health reforms are well advanced. FGPs are well established, providing a broad range of primary health care services. Moreover, the population can choose at which facility they want to enroll, rather than simply being assigned to a facility, as in Soviet times. A particularly problematic aspect of the health service delivery system in Zhezkazgan, up until this project was implemented, was that prenatal care was being provided by just two overworked obstetrician-gynecologists (ob-gyns) in the outpatient department of the maternity hospital—and not in FGPs, along with other primary health care services, close to where people live.

An assessment prior to the start of the Safe Motherhood project found that the maternity hospital in Zhezkazgan had about 1,500 births a year, a perinatal mortality rate of 13.4/1,000 live births and a caesarean rate of 10 percent in 2001. Satpaev has a general hospital with a maternity ward, where there are about 1,200 births each year, of which about 18 percent were caesareans. Sick newborns from both cities are referred to the neonatology department in the Zhezkazgan pediatric hospital. (Source: Siupsinskas)

In undertaking the Safe Motherhood project, ZdravPlus sought to integrate pre- and postnatal care into the FGPs' package of services, to complement other women's and children's health services

already being provided there—and at the same time to update providers’ knowledge and skills in line with international evidence-based practices. It also wanted to build an integrated system of care between the FGPs and the hospitals, providing women with continuity of care, updating providers’ practices in inpatient maternity units and making childbirth a more woman- and family-friendly experience. It was clear that, in building such a system, not only could the quality of care be improved, but that there was also potential for significant reductions in hospitalizations and thus for cost savings. Since the Government of Kazakhstan had not yet endorsed the MPS/PEPS approach, this would be a pilot project for the entire country.

While ZdravPlus worked in both Zhezkazgan and Satpaev, this report focuses on Zhezkazgan only, due to problems with some key evaluation data for Satpaev. The Satpaev hospital was closed for renovations in the second half of 2002 and many pregnant women went elsewhere, including to Zhezkazgan, to give birth. Thus, the hospital data for Satpaev were unreliable and, given the emphasis in this report on the results of the Safe Motherhood pilot, it was decided to drop that city from the analysis.

From the beginning of the project, WHO/Europe was a valued partner, making available its consultants to ZdravPlus, providing training materials and resource books worth thousands of dollars and taking a strong interest in the project.

The main aims of WHO’s MPS/PEPS initiative are:

- To bring about a reduction in maternal and neonatal mortality and morbidity, while at the same time promoting better quality of care and more rational use of resources;
- To promote fundamental human rights, including the rights to family life and health care;
- To implement strategies and activities among the three overlapping areas of quality of health care, health systems and involvement of family and community, through capacity-building and health advocacy measures directed at health professionals and policy-makers as well as the general population;
- To draw on the findings of current research and evaluation of what has been achieved by other WHO initiatives in the last five to 10 years; and
- To offer a model for updating legislation and reforming health systems. (WHO/Europe, PEPC)

MPS/PEPS is important in part because Evidence-Based Medicine (EBM) has shown that many practices performed in the name of medical safety have not been shown to be effective—and in some cases, have even been shown to be harmful. Meanwhile, other interventions—not all of them medical—have been shown to have a positive impact on outcomes. For example:

- Routine iron supplementation after the first trimester has not been shown to have a positive effect on a number of key measures of maternal or fetal outcome;
- Routine ultrasound surveillance is not recommended for normal, healthy pregnancies;
- Episiotomy should be used restrictively, rather than routinely, in uncomplicated births;
- Normal childbirth does not require a sterile environment; and
- The presence of a companion chosen by the woman during labor has a beneficial effect on outcomes and patient satisfaction. (Siupsinskas)

The interventions included in MPS/PEPS are evidence-based and cost-effective. They have been proven to improve birth outcomes and decrease risks for both mother and child. Moreover, the

initiative addresses a number of specific challenges in developing health initiatives in the European region, including the following:

- High maternal/perinatal mortality/morbidity in the Newly Independent States;
- Over-medicalization of maternal/neonatal care;
- Focus on inpatient care;
- Lack of decentralization of care and an integrated network between different levels of care;
- Outdated and mandatory treatment guidelines;
- Shortages of basic supplies and drugs to provide appropriate care at each level;
- Lack of standardized definitions and indicators;
- Absence of a multidisciplinary approach to perinatal care;
- Legislative constraints;
- Lack of access to available services: distance, lack of communications, financial, lack of information, poor interaction with health professionals. (WHO/Europe, PEPC)

A. Care Before the Pilot Project Started

In January/February 2002, Gelmius Siupsinskas, Associate Professor at Kaunas University of Medicine in Lithuania and consultant for WHO/Europe, visited several FGPs in Zhezkazgan and Satpaev, as well as the maternity hospital in Zhezkazgan and the maternity department in Satpaev general hospital. He also met with oblast and city officials. Based on this, he prepared an assessment of the current situation, with recommendations for ZdravPlus to follow in its Safe Motherhood program. (Siupsinskas)

1. Prenatal Care

Dr. Siupsinskas found that prenatal care in Zhezkazgan was provided mainly in the hospital outpatient department, by obstetricians and midwives. Only one FGP clinic in the city provided prenatal care. Care was initiated early in pregnancy in 62.3 percent of cases. Every week, the FGPs contacted the hospitals to obtain information about births and be able to provide postnatal care to women and newborns being discharged. The role of the midwives was limited, serving as assistants to the obstetricians, taking measurements, filling in records and conducting home visits to pregnant women. Women were asked to visit an obstetrician approximately 12 times, even with a normal pregnancy, although new prenatal care protocols, developed by the National Research Center on Mother and Child Health in Almaty, recommend only four to five visits for normal pregnancies. All facilities visited were warm and clean and had everything needed to provide prenatal care for normal pregnancies. However, essential medications for potential emergencies, such as severe pre-eclampsia/eclampsia (hypertensive conditions in pregnancy) or obstetrical hemorrhage, were not universally available: magnesium sulphate, hydralazine, normal saline for intravenous lines and systems for intravenous infusions.

In addition, obstetricians practicing in both outpatient and inpatient settings made extensive use of ultrasound to diagnose clinically chronic fetal hypoxia (oxygen deficiency), poly- and oligohydramnios (too much or too little amniotic fluid), fetal intrauterine growth retardation, placental insufficiency (the placenta does not pass sufficient nutrients to the fetus), etc. In all these cases, women were usually hospitalized. He also found that pregnant women were treated in the hospital in cases of so-

called “pre-gestosis”* (edema and/or rapid weight gain) or mild pre-eclampsia. This was a clear indication of over-treatment and unnecessary hospitalization.

Extensive screening for different perinatal infections (often not necessary) and genetic counseling was also taking place, while screening for β -hemolytic streptococcus (which causes sepsis in infants), asymptomatic bacteriuria (infected urine without symptoms) and Pap smears were not available. Moreover, some of the procedures that were routinely used during prenatal visits were not evidence-based (e.g. external pelvic and abdominal circumference measurements, controlling weight gain, multiple ultrasound scans, multiple vaginal smears, multiple syphilis tests, etc.). These conditions resulted in a number of false diagnoses and/or wasted resources.

Rarely, if ever, were husbands or other family members involved in prenatal care classes. This was not surprising, however, since the obstetricians generally had more than five hundred pregnant women on their list and were busy with routine screening procedures. Health professionals believed that the main function of prenatal care was to screen for pathology and to refer in case of problems. Very few efforts were made to educate, advise, support and reassure the mother-to-be and her husband/family.

Some primary health care professionals said they advised women to give their newborns water, in addition to breast milk, especially in the summer time, and to use different liniments for taking care of their breasts. This advice is contraindicated by current WHO and MPS/PEPS practices.

2. Care for Delivery

The maternity units in both cities were found to be warm and clean, with plenty of space. Despite that, six or eight pregnant women often shared a room, while other rooms stood empty. The same applied to new mothers and their babies. Three patients with newborns would be in one small room, while other rooms were empty. The health workers explained that the Sanitary and Epidemiological Surveillance Department (SES) asked them to regularly disinfect the delivery rooms and postnatal wards and then keep them empty for several days to “rest.”

There were many inpatients with diagnoses that do not normally require inpatient care: chronic fetal hypoxia, polyhydramnios, “pre-gestosis” or mild pre-eclampsia (“nephropathia”), fetal intrauterine growth retardation, threatened preterm labor, moderate anemia, and other conditions not related to pregnancy (“extragenital pathology.”) The condition of the fetus was assessed exclusively using ultrasound, and pathological signs included those of placenta, amniotic fluid and fetal behavior. Although there was no cardiotocography (fetal monitoring) available in either facility, the fetal biophysical profile was often mentioned as a criterion for assessment of fetal well-being. Some women were allowed to go home every second or third day or on weekends. A number of different medications were prescribed for treatment including: dipyridamole (“curantyl triantal”), actovegin, vitamins, oxygen cocktails, calcium, glucose for chronic hypoxia and placental insufficiency, antibiotics for polyhydramnios, intravenous fluids, dextran (“rheopolyglukin”), amlodipine (“norvasc”) for pre-eclampsia (a hypertensive condition in pregnancy), blood transfusions even for moderate anemia, and hormones and vitamins to prepare for labor. Most of these treatments are outdated and have no place in modern evidence-based practices. Some professionals agreed that they were over-diagnosing and over-treating, but said that they needed to keep beds occupied in order to prevent staff cuts.

* Gestosis is a condition related to the international diagnosis of pre-eclampsia/eclampsia/toxemia of pregnancy, but the diagnosis criteria are substantially different, such that most pregnant women are diagnosed with gestosis, and many with severe gestosis. Treatment involves medication and diet—such as food restrictions, salt restriction and diuretics—that were abandoned in other parts of the world when they were found to be harmful. Hospitalization is used frequently with no evidence to indicate improved outcomes.

Only anecdotal cases of vacuum assisted births were reported. Doctors said they were blamed and punished if instruments were used for childbirth. In Zhezkazgan, there was an increase in caesarian births (10 percent in 2001 as compared to 7.2 percent in 2000) and in the proportion of women with a previous caesarian (2.6 percent and 1.9 percent). Incidence of severe anemia in pregnant women in 2001 was 7.5 percent.

At one of the hospitals, two women who had given birth in the past hour were found alone in a delivery room on Rachmanov tables. Their newborns were separated from them in another room. The neonatologist said that they practice early skin-to-skin contact, but after that, they separate the mother and baby until they are transferred to the postnatal ward. All other newborns were found with their mothers. Another delivery room was empty and was said to be ‘resting after disinfection.’ One woman was found alone in a pre-labor ward being stimulated with oxytocin to induce labor because of “weak contractions.” The obstetrician said that she had been admitted early in the morning, and since then—the visit was at 3 pm—her cervix had remained 3 cm dilated and her contractions had become weaker. Her membranes had not ruptured. Partograms were not used to display progress in cervical dilation, along with other information about the status of mother and baby and progress in labor.

In another hospital, four newborns were found separated from their mothers in different rooms. One had had a caesarian birth, while the other was considered “high risk” and therefore needed to be in a special room for observation. All but one delivery room had no wall thermometers or clocks. Delivery tables were in very bad condition because of the frequent use of aggressive disinfectants.

The neonatal intensive care wards were empty during the visit. In fact, there were very limited options for taking care of sick newborns and no relevant equipment for ventilation, monitoring (pulse oximetry, etc.) or treatment (intravenous pumps, catheters, etc.). The incubators were very old, but “still working.” All sick babies who were considered to be “transportable,” were transferred to the pediatric hospital for intensive care.

About 30 percent of all infants up to age three were under “dispenserization” (i.e. regular follow-up) in a private infants’ clinic in the maternity hospital because of “posthypoxic encephalopathy or intracranial hypertension” or other neurological disorders. The maternity units were closed to visitors and, due to SES rules, friends and relatives were not allowed to visit. (Siupsinskas)

B. The Population’s Perspective

To complement Dr. Siupsinskas’ assessment, focus group discussions were held to learn about the perspectives of pregnant women, new mothers and their family members on perinatal care and the new WHO approaches. (Sange, FGDs) Four focus group discussions were conducted in Zhezkazgan in June 2002, with a total of 40 people participating, including women pregnant for the first time, women with a prior birth, new mothers, as well as a few young fathers and mothers of young parents, since the latter two groups often have great influence over young women.

Results from the focus group discussions indicate that women and men perceived the current system as the norm for quality maternal and child care. They were surprised by new ideas about childbirth and postpartum care, indicating that the population, as well as health care providers, would need to be educated about the benefits of the new approaches. Women did, however, express a desire to have more control over the process of labor and childbirth.

Most participants said they would follow the doctor’s advice about the number of prenatal care visits, but most thought about one a month would be appropriate. They felt the main purpose of visits is to observe progress in the pregnancy, development of the fetus and to be sure everything is “all right.” All groups expressed some concern that the 4-5 prenatal visits recommended by WHO was not enough. There seemed to be a psychological barrier that “once a month” is the minimum.

There was much discussion on the topic of each woman having a separate room. It was stated that there were up to 10 pregnant women in one room and having a separate room was associated with having to pay “big money.” The idea of a separate room was appealing to most women, but they were afraid that they wouldn’t know what to do with their baby without the advice of others on the ward. “When I was there, three women stayed with me,” one young mother reported. “They helped me very much. They showed me how to hold the baby. I would not wish to...be alone.” The men thought women would be bored if they were alone and they also thought it good that young women can acquire experience from women who have already had babies. According to the women, health workers should provide information about nursing the newborn and how to care for the baby.

The participants said that it is not permitted to visit a woman in the hospital, and there was some concern about noise and dirt if visitors were to be allowed. Mothers of young parents, however, said they would be glad to visit their daughters and daughters-in law in the hospital.

As for having a partner present, women said they would like to have some support but generally preferred to have their mother attend the birth, rather than their husband. They preferred that the husband come shortly after the birth. Some women, however, wanted their husbands nearby and one commented, “I heard that those husbands who attended the birth thereafter give more help and understanding.” Many men agreed to be present during contractions, but most thought it would be better if mothers—not they—were present during childbirth itself. They expressed fear about attending the birth.

Most pregnant women approved of the idea of having their own room for the birth. “A woman should bear a child one in a room,” or “It is better to be individual. You concentrate upon yourself.”

Most women thought that shaving pubic hair was not necessary, even though it was commonly done, and they thought that medical personnel “shave carelessly.” Most women were not uncomfortable with the idea of having an enema before giving birth. “There is no danger of making a child dirty or infecting him...it is all sterile,” they said. Some were shocked, however, and said “I’d better not give birth.” Some women preferred to do these procedures themselves, at home.

All the women had given birth on their backs on a Rakhmanov table and for many it was the first time they had heard that other positions could be used during labor and childbirth. Some thought it would be easier in a squatting position and some voiced the opinion that a woman should be able to give birth in whatever position she wished. However, their overriding concern was the safety of the baby if they gave birth in a squatting or vertical position and concern that the hospital wasn’t equipped for that.

Mother-baby contact immediately after childbirth is now widely practiced, according to the focus groups. There were some concerns expressed about this practice, according to the new mothers, because they said they were too exhausted and too weak after the birth to hold the baby. Also, some participants reported that village women come to town to give birth, so they can have a short rest from work, and they hope the medical personnel will take care of the baby for them.

Many of the mothers were sure that women should stay in the maternity hospital for seven days after giving birth, but others said that two to three days is enough. Overall, the consensus was that, if mother and baby are healthy, the baby’s cord has dried up and prolapsed, there is no need to stay more than three days.

Women didn’t have many kind words for health workers. “Most doctors have a ‘don’t care’ attitude. If all were qualified specialists, then many children would have been born healthy. But I am thankful to the midwife who handled the birth. She had a hard time with me, but the birth was normal. When my daughter-in-law gave birth, she had ruptures. Midwives should be kinder.”

Women expressed their desire to be actively involved in the decision-making process, for instance, about what position to take in labor, how to minimize pain during contractions, whether or not to perform a caesarian birth or to stimulate labor. All participants thought women should know about the effects on the mother and baby of any drugs prescribed during pregnancy. Men also supported this approach. Female participants state that women should be interested in these issues themselves and should read more. (Sange, FGDs)

C. Recommendations for the Pilot Project

Dr. Siupsinskas made a number of recommendations consistent with the general principles for maternal and perinatal care in Europe drawn up by the WHO Perinatal Care Task Force at its first meeting in Venice in 1998. (Siupsinskas)

Care for Normal Pregnancy and Birth should be Demedicalized

In the facilities visited, nearly 90 percent of pregnant women were considered to be patients requiring medical treatment, often on an inpatient basis, even for minor conditions (mild anemia, mild hypertension, swelling, vaginal candidiasis, etc.) that have no proven impact on perinatal outcome. This is outdated care that can be improved. Pregnancy should be viewed as a normal physiological event rather than as a disease.

There is very limited evidence that prenatal care reduces maternal mortality. Four prenatal visits are enough for appropriate monitoring of most pregnancies—at least 85 percent. The most appropriate personnel to provide prenatal care are midwives (along with family doctors). Participation of specialists in routine prenatal and intrapartum care usually results in over-medicalized care, with more interventions, more medications, less patient satisfaction, and no improvement in outcomes. Every effort should be made to protect pregnant women, women in labor, women after childbirth and their newborns from unnecessary tests and medications, which often result in unfavorable outcomes.

Care should be Based on the Use of Appropriate Technology

In maternity settings, the emphasis should be on clean—not necessarily sterile--births. There is no need to disinfect rooms, wards and furniture, nor to sterilize bedclothes, underwear and newborns' clothes. These items should simply be clean. In general, an over-sterilized, disinfected environment in maternity units only results in nosocomial infection.

Rates of caesarian births were high, probably partly because all women who had a previous caesarian received another one, and also because excessive (often inappropriate) use of ultrasound to assess fetal well-being leads to aggressive interventions. Vacuum-extraction is not used in maternity units, because the authorities consider every ventouse-assisted birth to be bad practice. This is contradictory to EBM. Women are giving birth in an inappropriate, flat-backed position with their legs fixed in stirrups. A regular bed is more appropriate than a Rachmanov table. WHO recommends more vertical supine positions—or women should choose the position they feel most comfortable with.

The partogram should be used to monitor all births. It is an example of appropriate technology that can reduce the need for interventions and medications and improve neonatal outcomes. It should also be stressed that there is not enough evidence to support routine ultrasound screening for all pregnant women.

Care should be Regionalized

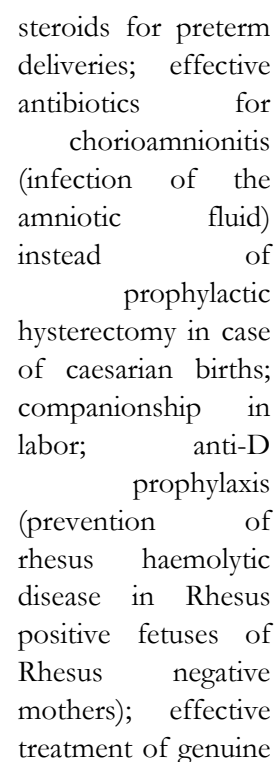
Outpatient prenatal care should be provided as close as possible to the family and community. Screening for problems in pregnancy is only one of the important roles of prenatal care. Others are education, information and reassurance of the woman and her family. When a problem arises that cannot be managed within primary care, the woman needs to be referred to the secondary level for outpatient or, if necessary, inpatient care.

For the approximately 2,500-2,700 births a year in the region, only one maternity unit should be equipped for pathological births and neonatal intensive care, e.g. fetal intrauterine growth retardation, multiple pregnancy, preterm delivery, somatic disease, etc. Another maternity unit should be reserved for normal cases. There are insufficient human and financial resources to equip all maternity units with the relevant neonatal intensive care units and high-risk pregnancy laboratories (ultrasound, cardiotocography, intensive care, etc.).

Care should be Evidence-Based

Practices that have been shown to be ineffective or harmful should be discouraged, along with those not yet tested for efficacy and safety. These include medical treatment of fetal intrauterine growth retardation; fetal chronic hypoxia; poly- and oligohydramnios; mild pre-eclampsia; mild pregnancy induced hypertension; threatened spontaneous abortion or threatened preterm delivery; administration of sedatives (instead of magnesium sulphate) for severe pre-eclampsia/eclampsia; spasmolytics in labor; hormones for cervical ripening; and multiple medications for newborns/infants for post-hypoxic encephalopathy.

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extraction instead of forceps; the partogram for monitoring labor; free positioning of women in labor and childbirth; and many others.

Care should be Multidisciplinary

The current practice should be abandoned, where almost every pregnant woman is sent for a consultation with an internist. The internist then identifies a diagnosis—which, in most cases, has no proven impact on pregnancy outcome—which then places the woman in a “high-risk” group. A consultation with a family doctor, rather than a specialist (internist), should be enough for most pregnant women. A key role in caring for normal pregnancies and births should be reserved for well-trained midwives. Anesthesiologists should be trained to manage problems such as severe pre-eclampsia/eclampsia, shock and obstetric hemorrhage in line with EBM, and as part of a midwife-obstetrician-neonatologist team.

Care should be Holistic and Family-Centered

Maternal and perinatal care should satisfy the physical, emotional and psychosocial needs of mothers, newborns, fathers and families through a holistic approach. Screening for and managing complications is only one goal of evidence-based maternity care. Others are educating and informing along with providing psychological support of women and their families. Separation of pregnant women, new mothers and their newborns from their families by not letting visitors into maternity and neonatal intensive care units is contrary to EBM and unacceptable from a humanistic point of view. Pregnancy and birth are normal, physiological events, and in order to be implemented, perinatal care interventions must be centered on the information, motivation and participation of the whole family and local community.

Care should be Culturally Appropriate and should Involve Women in Decision-making

Each new intervention should be evaluated in a national context for its impact on cultural attitudes and an effort should be made to facilitate its acceptance through information and discussion. Change should not be introduced because of new prikazes (orders) but because it comes from understanding the needs and motivation of local people and is based on multidisciplinary agreement including the opinion of care-receivers.

Women's participation in decision making, implementation of initiatives and advocacy should be enhanced and encouraged by enhancing awareness of health and health education. (Siupsinskas)

VII. Pilot Project Activities

There were two overall objectives for the pilot project:

- To improve the quality of perinatal care for women, newborns and their families by promoting modern evidence-based approaches; and
- To demonstrate the cost-effectiveness of these approaches.

The pilot project approached maternity services from a systems perspective. It set out to work both in FGPs and hospitals to create improved care and continuity of care across levels of the health system. Moreover, in addition to working on the “supply” side, with hospital and clinic services, it planned to work on the “demand” side, educating women and their families about how to care for

Serik Tuleybaev, Head of the Zhezkazgan Maternity Hospital explained in an interview why he decided to introduce the new approaches in his hospital. “First of all, I looked at the economic side,” he said, “as we always lack finances and always try to save as much as possible.” Another consideration for him was that it brought a new attitude toward patients, “we started to respect patients and to respect their rights.” However, he faced some resistance, most significantly from the SES. His own staff at the hospital was also not immediately convinced. One of them said in an interview, “In the beginning of course the attitude was negative because it was difficult for us. But then we could see the results, we saw that there are much fewer complications after the delivery.”

Dr. Tuleybaev acknowledged the risk involved in implementing approaches not yet adopted by the Ministry of Health. However, he felt that the head of an organization has to be willing to take responsibility. “If I see some new, good technology that people all around the world use, of course I would like to have the same in my hospital,” he said. “Why should our Kazakhstani women—or those living in Zhezkazgan, at any rate—deliver under old conditions? I would travel to the republican [national] level and try to convince people. When we did our report in Karaganda, the gynecologists listened very carefully, and they said that they needed this program.”

themselves during pregnancy and what to expect during the prenatal period and childbirth. It also anticipated using the experience with perinatal care to support improved hospital payment systems that eliminate or reduce incentives for over-hospitalization and over-medicalization. And it wanted to identify obstacles in the current health system—like antiquated regulations or reporting forms—that provide incentives to continue outdated practices.

The Safe Motherhood project was expected to bring results for the health system—results with significant implications for health reform and for the cost of care:

- The provision of prenatal and postnatal care closer to where women live and work—at the FGP level, with much of this care provided by midwives;
- A less medical approach to prenatal care, with fewer prenatal visits; fewer hospitalizations; fewer referrals for specialist care, ultrasound and lab tests; and reduced, more rational, use of drugs;
- A less medical approach to childbirth, with shorter hospital stays; fewer procedures during the birth process; less use of drugs, vitamins, glucose, etc.
- More up-to-date infection prevention procedures that allow family members to visit in the hospital and eliminate unnecessary, costly sterilization and disinfection procedures—which should save money and could eventually lead to closing duplicative delivery rooms, operating theaters, neonatal intensive care rooms, etc.; and
- Improved health financing systems that give hospitals more autonomy to manage their resources.

A. Preparations for the Pilot

There were discussions over a period of several months to ensure that there would be a positive policy environment for implementation of the new program. The dialogue began during the needs assessment, when Gelmius Siupsinskas engaged in initial discussions with top officials in Karaganda

Oblast, in Zhezkazgan and Satpaev, and held meetings with the staff of the two maternity units as well as with FGP staff. Although all officials were initially incredulous at the demedicalized WHO approaches, and thought them inappropriate in an environment where they considered the vast majority of pregnant women to be sick, they recognized the need for new strategies to get better pregnancy outcomes and were willing to try the new approaches.

Zhezkazgan is a pilot site for health reforms in Kazakhstan, which allows providers to practice in a less restrictive environment than is generally found in the rest of the country. Nevertheless, it was important to ensure that the usual frequent inspections from higher authorities would not result in providers being fined or punished for implementing the new practices. This applied most significantly to the SES, which enforces antiquated infection control practices through a system of fines and punishments. Key to waiving these inspections was the support of the Oblast Health Department, the City Health Department and the Chief Gynecologist of Karaganda Oblast.

To ensure that policy makers were informed of the new approaches and the rationale for them, two orientation meetings were held. The first focused on changes at the hospital level and the second on outpatient care. Key staff from the oblast and city health departments, heads of the maternity units and other senior hospital staff, SES, key FGP doctors and representatives of the Association of Family Physicians of Zhezkazgan attended. Major topics covered were EBM, the concept of risk, education for parents, infection control when providing perinatal care, modern approaches to assessment of the efficacy of perinatal care, and the experience of Russia and Lithuania in changing perinatal care.

Once it was decided to proceed with the pilot project, a technical working group was established to review and approve the training program and educational materials. The working group brought together all types of health workers from the FGPs and the hospitals at the two pilot sites: ob-gyns, neonatologists, family doctors, midwives, administrators, and SES representatives.

Representatives from the National Research Center for Mother and Child Health, the policy-making body on these issues in Kazakhstan, also participated. The technical working group also played a key role in identifying and addressing barriers that could impede integration of the new Safe Motherhood practices into the existing system. Most of the barriers identified related to SES regulations (e.g. how to clean the delivery room, not to have unauthorized people in hospital, etc.) and the head of the City Health Department provided a waiver from these regulations to allow the project to be implemented.

"Of course when we first heard this information, it was just information, we laughed... When Gelmius came the first time he just visited this maternity hospital and the same hospital in Satpaev...[and] there was a lot of resistance to everything that Gelmius talked about. The meeting lasted for two, maybe two and a half hours...by the end of the meeting doctors started to listen to him, to really listen...what he told us seemed unreal, although somewhere inside we felt that it was OK but we had had so much instruction that was against what he was saying." *An ob-gyn at Zhezkazgan Maternity Hospital*

B. Training

The core of the program was training in the theory and practice of WHO's evidence-based approaches to maternal and perinatal care, conducted by WHO consultants. To promote the concept of working in teams, the courses included both doctors and midlevel staff in the same course—an innovative concept in Kazakhstan. There were three courses:

- A nine-day inpatient course for 20 ob-gyns and midwives working in the maternity units in Zhezkazgan and Satpaev in August-September 2002. This covered a broad range of topics, including evidence-based medicine; assessing obstetric risk; anemia in pregnancy; bleeding; hypertensive disorders in pregnancy; infection and pregnancy; the three stages of labor; the partogram; using oxytocin in labor; postpartum hemorrhage; inducing labor; reanimation of the newborn; education for parenthood; postpartum depression; and care of the mother in

the first week. The course used WHO training modules based on the manual “Essential Antenatal, Perinatal and Postpartum Care,” and was taught by two WHO consultants, Gelmius Siupsinskas and Irina Stepanova, Chief Midwife of Maternity No. 21 in Perm, Russia.

- Two nine-day outpatient courses in October/November 2002 for 40 ob-gyns and midwives working in the FGPs. WHO/Europe has not yet developed a training program for pre- and postnatal care in primary health care settings. So this course was based on that used by the Women and Infants’ Health (WIN) project in Russia, with some adaptations to address specific aspects of care that were over-medicalized. The major topics covered included prenatal care, the concept of risk, infections in pregnancy, education for parenthood, nutrition during pregnancy and lactation, anemia in pregnancy, hypertensive disorders, when to refer, care of mother and baby in the first week, infant feeding, the postnatal check-up and record-keeping. This course was taught by Tatyana Dinekina, Head of the Obstetric Department at Maternity No. 3 in Murmansk, Russia, and Dalia Jeckaite, Senior Midwife at the Public Hospital of Panevezys in Lithuania.
- An eight-day course for 20 neonatologists, neonatal nurses and midwives working in the hospitals, conducted in November 2002. This course focused on assessment and care of the healthy newborn; care of the newborn with asphyxia, birth defects, birth trauma, jaundice or infection; care of low birth weight newborns and methods of feeding low birth weight babies; breastfeeding counseling and breastfeeding difficulties; breastfeeding sick babies; talking to parents prior to discharge from the hospital; criteria for referral; and evidence-based medicine and how to find useful literature for creating protocols of care. This course used WHO training modules based on the manual, “Essential Newborn Care and Breastfeeding.” It was taught by Pavel Mazmanyany, Head of the Neonatal Service at the Research Center of Maternal and Child Health Protection, Yerevan, Armenia and Zaure Kudaibergenova, breastfeeding trainer from the National Nutrition Institute in Almaty, Kazakhstan.

“We had theoretical seminars and then all together we went to women who were delivering and the obstetrician showed our obstetricians how to act and what to do for practical experience. And what was exceptional about these seminars was that doctors, obstetricians and nurses were trained together. Never before had they been trained together. The purpose was so that our attitude toward nurses would change so that we would trust nurses more, and allow them to have a bigger role in the care of the patients.” *Staff from the Zhezkazgan Maternity Hospital*

All the courses included theoretical knowledge and classroom exercises in the first week, but included practice with real patients in the second week, under the supervision of the trainers. Participants also received the WHO manuals to study when they returned to their work-sites.

C. Follow-up Visits

As the pilot project was being implemented, WHO was finalizing some follow-up tools designed to be used a few months after training to support health workers in the early months of program implementation. Some of these tools reinforce skills taught during the training of health workers, e.g. observation of clinical practice, interviews of health workers and checking for the availability of protocols. Others concern the “readiness” of the health facility to provide services, e.g. the availability of equipment and essential drugs. And yet others are aimed at getting feedback through interviews with clients.

ZdravPlus sent two representatives from the National Research Center for Mother and Child Health to participate in a WHO follow-up training course in Samara, Russia, in November 2002, to learn how to use the new tools. Six months after the training courses were completed; these persons used the new tools to look at how implementation was progressing and to reinforce the new practices.

At that time, the “supervisors” found that prenatal care was being provided in the FGPs and fewer women were going to the hospital outpatient department. The average number of prenatal care visits had declined, there were fewer laboratory tests and ultrasound investigations and the FGPs were conducting educational sessions for pregnant women and their families where they could learn about nutrition, partner support during childbirth, breastfeeding, postpartum contraception and other topics. In the hospital, they found that much had changed. Women had their own rooms and had been assigned an individual midwife to help them; the midwives were explaining procedures to the woman and asking her permission to proceed; shaving and enemas had been almost entirely discontinued; the number of partner-assisted births was increasing each month; the use of medications and laboratory tests had declined; women were choosing their own delivery position; the partogram was being widely used; oxytocin was being used to prevent bleeding in the third phase of delivery; the disinfection of rooms and clothes had been discontinued; the newborn was being placed on the mother’s breast immediately after delivery—and many other changes had been implemented. Women were being discharged on the third or fourth day after a normal birth. There were fewer caesarian deliveries, and those women who had caesarians were being discharged on the fourth or fifth day.

D. Education for Women and Families

Recognizing the importance of education and information for women and their families in the new approaches to Safe Motherhood, ZdravPlus produced a short booklet and two brochures for pregnant women and new mothers, in line with WHO recommendations. The booklet, “Expecting a Baby,” gives women basic information about pregnancy: visits to the doctor; changes in life due to pregnancy; how much time a pregnant woman should sleep; physical exercise; things to avoid; health and nutrition, including the kinds of foods needed by a pregnant woman and how much water to drink; the effects of smoking and alcohol on the baby; sexual intercourse while pregnant; management of conditions such as anemia, reproductive tract infections and “gestosis”; breastfeeding; family planning; and warning signs that indicate a woman should seek immediate medical attention. This booklet was adapted from one developed by the WIN project in Russia.

A brochure, “Assistance During Delivery,” helps women understand the benefits of having somebody with them during childbirth and helps them decide who that person could be. And another brochure, “Pregnancy is the Time to Make Choices,” depicts various positions for childbirth that can make the process more comfortable for women than the supine position traditionally used. Women are encouraged to explore these possibilities, considering their own comfort—which is important for them and the baby—rather than the convenience of the health workers.

A series of short video clips on Safe Motherhood that ZdravPlus produced in 2001 was also used, particularly during group education sessions for pregnant women and their family members. The series seeks to explain that couples should be responsible for family planning and pregnancy and that pregnancy and childbirth are normal physical conditions. The video consists of 10 two-minute segments on topics such as nutrition, exercise, smoking and alcohol, partnership delivery, breastfeeding and other topics.

ZdravPlus also provided training on interpersonal communications skills for the staff in FGPs and the Zhezkazgan Maternity Hospital, although this training took place after the end of the official implementation period, so the results are not apparent in this report. This training was designed to help health workers understand how to communicate effectively with the population—for example by focusing on just a few messages rather than a dozen health topics at once—using simple non-medical language, using visual aids to reinforce information, and techniques for checking that people have understood the information.

E. Equipment

ZdravPlus had a limited budget to provide equipment to the hospitals and asked the WHO consultants conducting the training courses to work with the hospital staffs after the training to determine which equipment could have the greatest impact on maternal and infant health. Both hospitals received ambubags for newborn resuscitation, injection dosimeters, vacuum extractors for use in lieu of forceps, and laryngoscopes to help with resuscitation. In addition, the Zhezkazgan hospital received a pulse oximeter (to measure oxygen levels in the blood), in view of its larger number of births and appropriate role as a referral hospital.

F. Study Tour

ZdravPlus and the Academy for Educational Development's START project, a USAID-funded training program, collaborated to send eight people to Lithuania for a study tour to find out how international approaches to perinatal care are implemented there. Participants were from the National Research Center for Mother and Child Health, Karaganda Oblast Health Department, Zhezkazgan City Health Department, the two maternity units and from FGPs—and all were closely involved with the Safe Motherhood project.

The group visited the MOH in Lithuania to learn about standards and protocols (particularly preventive protocols), other policy issues and to review data on pregnancy and birth outcomes. There were many roundtable meetings and discussions with physicians and representatives of health departments, allowing for networking and questions.

The study tour participants were exposed to all levels of a regionalized system of care. They visited three different public and private outpatient clinics, ranging from a rural clinic serving a population of 2,500 to an urban clinic serving a population of 50,000 and providing both primary and referral-level care. Family doctors and midwives ran all the clinics, with obstetricians involved only in the large city facility. At the secondary level, they visited Kaisiadorys Hospital, a primary referral level facility for normal pregnancies and births in a district with a population of about 30,000 people and Kaunas City 2nd Hospital, a secondary referral (secondary B) level facility for patients with moderate obstetrical or other problems. At the tertiary level, they saw the Perinatal Center in Kaunas, a referral center for both inpatient and outpatient care, and Kaunas Medical University Hospital. In Vilnius, participants visited primary care and primary referral level (secondary A) units and secondary referral (secondary B) level maternity clinics.

All the participants considered the study tour very directly relevant to their work and almost all thought they could apply their new knowledge to their own work. In follow-up interviews, the majority reported having held roundtables for their co-workers when they returned home, to inform them about the new approaches to perinatal care used in Lithuania.

VIII. Results of the Pilot

A. How it was Assessed

Every Safe Motherhood program seeks to reduce maternal and infant mortality, as well as morbidity, and the pilot project in Zhezkazgan was no exception. However, it was clear from the beginning that the number of pregnancies and births in this pilot project would be too small to be able to show a statistically significant impact on mortality, since fortunately these are rare events. Nevertheless, the project tracked maternal, perinatal and infant mortality, since they are key measures of maternal and infant health and these are shown in Annex 1 at the end of this report.

The pilot project was expected to produce two kinds of results: those for women and families and those for the health system. It was anticipated that women could expect to receive more convenient and client-oriented, less medicalized care, to be more involved in decision-making and to be able to include their families in childbirth and recuperation. The health system was expected to be better able to provide quality prenatal, delivery and newborn care, based on international evidence of “what works,” and to become more responsive to the needs of patients and their families. In addition, the health system would use appropriate providers and appropriate technology, decreasing its dependence on specialists and over-medicalized care.

ZdravPlus used three main approaches to evaluate the results of the project:

- The hospital case database in Zhezkazgan was used to examine trends in hospitalization. This system is the basis for hospital payment in Zhezkazgan and includes data about all hospital discharges, including information about patients (age, sex, place of residence), diagnosis, and the hospital stay, particularly the length of stay, reception/discharge departments, surgical interventions, intensive care and the outcome of hospitalization (discharge, referral, lethal outcome). This database was used to track codes from the International Classification of Diseases, 10th edition (ICD-10) related to prenatal care, delivery and newborn care. Special analyses were conducted for 11 prenatal conditions (identified by ICD-10 codes) to see if there were changes in the frequency of these conditions after implementation of the new WHO approaches. It was anticipated that hospitalizations for these 11 conditions should decline.

The hospital case database was also used to assess the cost per hospital case. For this purpose, budget and financial reports of the maternity hospital were analyzed. In addition, documentation from the City Health Department on the hospital payment system was used to calculate average cost reimbursement for all obstetric cases and for the specific monitored conditions.

The time periods for which the hospital data were analyzed were the year prior to implementation of the Safe Motherhood project, July 2001 to June 2002, and the first year of implementation, July 2002 to June 2003.

The hospital case database reflects 4,444 cases at the Zhezkazgan Maternity Hospital in the year prior to implementation and 4,934 in the implementation year. Although it was planned to analyze the hospital data for both Zhezkazgan and Satpaev, it proved impossible to do so because, as already noted, the Satpaev hospital was closed for renovations in the second half of 2002 and many pregnant women went elsewhere to have their babies, including to the Zhezkazgan Maternity Hospital. For this reason, analysis for Satpaev was abandoned and the data for the Zhezkazgan Maternity Hospital were re-analyzed to delete records for women from outside the city. Thus, the number of records for women living in Zhezkazgan was reduced to 3,869 in the year before implementation and 3,963 in the implementation year.

The number of births in the Zhezkazgan Maternity house rose from 1,447 before the project was implemented to 1,512 during the implementation year. When only those births to women

from Zhezkazgan are taken into account, however, the number falls to 1,209 before the project and 1,225 during the implementation year.

- Surveys of women who were pregnant or who recently gave birth to find out about the care they received and their level of satisfaction. Interviews were conducted by Sange Research Agency in Zhezkazgan and Satpaev in November 2002 (Sange, Quantitative Study) and again in September 2003 (Sange, Comparative Analysis.) The sample on each occasion included 200 women: 50 in Zhezkazgan and 50 in Satpaev who were at least 12 weeks pregnant (two-thirds in the third trimester of pregnancy); and 50 new mothers in each town who had given birth in the last three months (10 in each city were still in the hospital.) Different indicators were analyzed for different populations, according to the nature of the question. Some were based on the entire sample, some just on pregnant women and some just on women who had given birth recently. Whenever survey data is reported in this report, it is specified to which group the data pertains. The average age of the women in both surveys was 26 (ranging from 16 to 44), with similar numbers of women with first pregnancies and with second or higher order pregnancies.

This analysis uses the survey conducted in November 2002 as the pre-implementation period (baseline) and that conducted in September 2003 as the implementation period (endline)

Unfortunately, an unanticipated problem arose with the analysis of the client surveys. The results from the baseline survey in 2002 combined data from Zhezkazgan and Satpaev for most indicators, while the results of the endline survey in 2003 were presented separately for the two sites for most (but not all) indicators. When Satpaev was dropped from the analysis, it became important to separate out the data from Zhezkazgan in the baseline survey. However, the research firm's data files had been destroyed by a computer virus attack and it was impossible to re-run the data. Thus, the presentation of the data from the client surveys in this report is not as straightforward as it might be. Where data from Zhezkazgan City only was available for the two time periods, they were used. Where such data were unavailable, data for the two sites together were used for purposes of data comparability. However, since Zhezkazgan typically showed more progress than Satpaev during the implementation period, the data for the two sites together is often presented along with endline data for Zhezkazgan. Wherever data from the client surveys are used, it is made clear to which site or sites the data refer.

It should be kept in mind that the sample size for these surveys was relatively small, particularly when results from Zhezkazgan only or for one group of women—either pregnant or new mothers—are considered. So the findings should be viewed with caution.

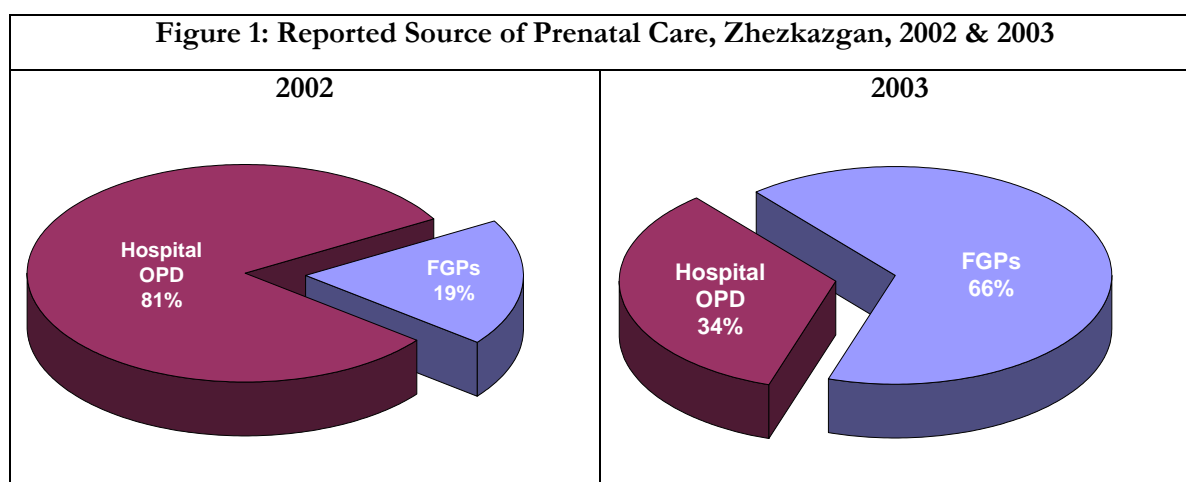
- Official statistics from the City of Zhezkazgan, which collects data for a large number of health indicators. The key indicators used appear in Annex 1. The periods covered by these data coincide with those used for the hospital data: July 2001 to June 2002 for the pre-implementation period and July 2002 to June 2003 for the implementation period. Zhezkazgan Maternity Hospital also collected additional data and, for a few indicators, these data were used. These data cover the first half of 2002 and first half of 2003.

Another important source of information was interviews conducted with staff at the Zhezkazgan Maternity Hospital in March 2003. These provided valuable qualitative information on how attitudes and practices had changed and shed light on some of the difficulties encountered. All quotations from Zhezkazgan staff included in this report come from those interviews.

As described above, the results presented in this report compare data for two years, the year prior to implementation and the implementation year. It should be noted, however, that these periods cannot be clearly delineated, as Zhezkazgan began to implement the new approaches as soon as they heard about them, right after the needs assessment in February 2002—several months before the training started. It wasn't until November 2002 that all training was completed and providers were fully

prepared to implement the new practices. Thus, basic implementation began during the pre-implementation period and the baseline client survey was conducted when most of the training courses had already been held. Overall, then, this report probably underestimates the magnitude of the changes that took place.

The data presented should be viewed with caution. While the favorable trends seen in this report may be due to implementation of the new Safe Motherhood approaches, the results cannot automatically be attributed to the pilot project. It is possible that other factors, such as health services utilization patterns, the provider payment system, social conditions or other factors could have influenced the results.



B. Changes in Prenatal Care

1. Shifting Care from the Hospital to FGPs

One of the important aims of the pilot project was to shift prenatal care from two over-burdened ob-gyns in the outpatient department of the Zhezkazgan Maternity Hospital to FGPs around the city, making care more accessible for women. As can be seen in Figure 1, this has clearly happened. In the baseline survey of women in 2002, 81 percent in Zhezkazgan reported that they received prenatal care in the hospital outpatient department, while 19 percent went to FGPs. This changed significantly in 2003, when two thirds of these women (66 percent) said that they received their prenatal care from FGPs and only 34 percent from the hospital outpatient department. Before the project, 64 percent of the women said that FGPs were more convenient for them, but 82 percent thought that the hospital provided better quality care. The following year, perceptions of the quality of care in FGPs had improved quite dramatically, to a point where a small majority thought the FGPs provided better care (53 percent in 2003, as compared to 18 percent in 2002). (Sange, Quantitative and Comparative Analysis)

Ninety-five percent of women in Zhezkazgan and Satpaev received prenatal care from an ob-gyn and only five percent from a family doctor in the implementation phase of the project. (Sange, Comparative Analysis) This was very little changed from the 97 percent pre-implementation level. Since the ZdravPlus training for FGP staff focused on ob-gyn-midwife pairs, it was not expected that family doctors would play a large role in prenatal care or that midwives would begin to take the lead. It was hoped, however, that there would be somewhat more positive attitudes toward provision of care by family doctors and midwives.

The survey of women in both Zhezkazgan and Satpaev showed that they had more positive attitudes toward midwives providing prenatal care than toward family doctors, both before implementation of

the pilot project and afterwards. (Sange, Quantitative and Comparative Analysis) Eighty-three percent of women thought that midwives could, or could “maybe” provide prenatal care, in the baseline survey (52 percent saying they could provide care and 31 percent saying “maybe”), and this rose nine percentage points, to 92 percent, in the implementation-phase survey (47 percent saying they could provide care and 45 percent saying “maybe.”) and opposition to midwives providing care fell somewhat, from 17 to eight percent. Women remained skeptical toward the idea of family doctors providing prenatal care, though there seems to have been a slight shift toward support for this concept. Only 59 percent of women thought it was a good idea or “maybe” a good idea before project implementation (27 percent thought it a good idea and 32 percent thought “maybe”) and this increased slightly to 64 percent in the implementation phase (29 percent supportive and 35 percent saying “maybe.”) While 41 percent were opposed to the idea in 2002, this fell to 36 percent the following year.

2. Demedicalization

Consistent with the trend toward demedicalized care, WHO recommends 4-5 prenatal visits for a normal pregnancy and official statistics from Zhezkazgan confirm a significant downward trend in the number of visits. These figures show that women made an average of 12 prenatal visits during the period July 2001 to June 2002 compared to only six visits during July 2002 to June 2003. The survey of women appears to confirm this trend, although the data for the two survey periods are not readily comparable. In the baseline survey, pregnant women in Zhezkazgan/Satpaev reported that, on average, their health professional (obstetrician-gynecologist) advised them to make about eight visits during their pregnancy. By the time of the second survey, 58 percent of pregnant women in Zhezkazgan reported that they were advised to make six or fewer visits to their care provider. (Sange, Quantitative and Comparative Analysis)

While, initiating prenatal care in the first trimester is not a key WHO indicator—and this project did not emphasize making the first prenatal visit early in pregnancy—this is an important indicator for Karaganda Oblast and it was monitored over time. According to official statistics from Zhezkazgan, the percentage of women who came for their first prenatal visit in the first trimester remained constant, at 63.7 percent for July 2001 to June 2002 as well as July 2002 to June 2003.

The percentage of pregnancies classified as “normal,” rather than “pathological” increased from 12 percent in the first half of 2002 to 21 percent a year later, according to official statistics in Zhezkazgan. Even so, this is still a very low figure compared to WHO’s guideline that about 85 percent of pregnancies are normal.

The continuing high levels of referral to specialists, according to the reports of women in the surveys, show that there is still a long way to go to really demedicalize care and make it more client-friendly. The endline survey showed that 99 percent of women in Zhezkazgan said they had received a referral, with each woman referred to 2.4 specialists, on average. Almost all of the women were referred to an internist (99 percent of women) and/or a dentist (97 percent)—the latter being an appropriate referral—although 12 percent said they had been sent to a nephrologist. Referrals to other specialists stood at a level of less than 10 percent for each specialty. (Sange, Comparative Analysis) These high referral levels are probably due to old regulations requiring referral of all pregnant women to an internist to assess whether they have any underlying conditions (“extragenital pathologies”) and the continuing threat of punishment for a primary health care doctor who fails to diagnose a condition that is identified later, at higher levels of the system.

Consistent with these high referral levels, 76 percent of all the Zhezkazgan women interviewed in the client survey in 2003 reported that they had been told they had at least one condition complicating pregnancy. More than half (54 percent) were told that they had anemia brought on by pregnancy, 24 percent were told they had kidney or uro-genital diseases (already present before pregnancy in almost all cases), 14 percent reported edema, six percent high blood pressure and two percent heart

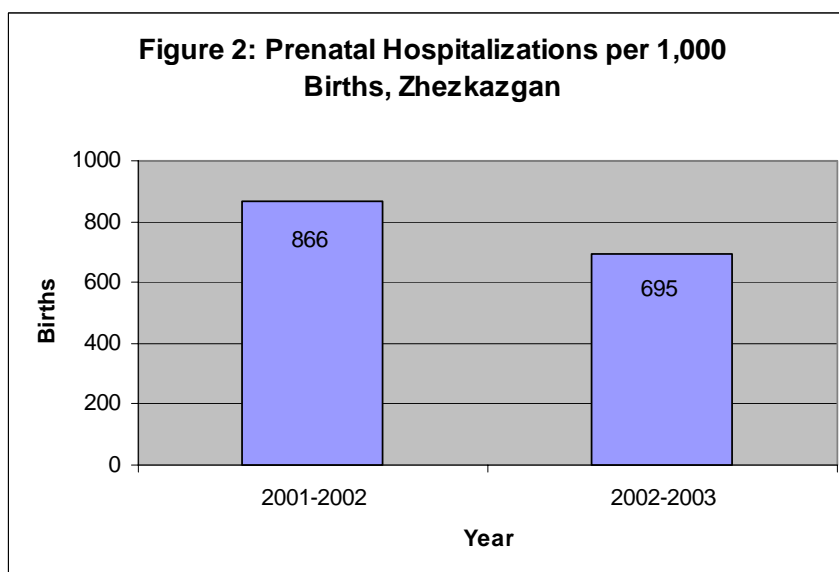
problems. For reasons that are not clear, these levels are considerably higher than in 2002 when only 40 percent of women in Zhezkazgan and Satpaev reported that they had suffered from a condition complicating pregnancy. (Sange, Quantitative) It is quite likely that these conditions were diagnosed by the internists, who did not benefit from the Safe Motherhood training, or that the (trained) FGP doctors remained fearful of punishment and, as prenatal care shifted from the hospital outpatient department to them, sought to protect themselves by diagnosing problems and/or making referrals. It should also be kept in mind that these data are based on reports from women and not on medical records, so the women's recollections may not be completely accurate.

While the interviews with women indicate that doctors still tend to view pregnancy as a disease, it is encouraging to note that there is a trend toward reduced hospitalization during the prenatal period. In 2003, just 30 percent of the women in Zhezkazgan who had recently given birth reported that they had been hospitalized during the prenatal period, compared with 55 percent in Zhezkazgan/Satpaev the previous year. The most frequent reasons for hospitalization, as reported by the new mothers, were threatened abortion or preterm labor and anemia. A little over half of the hospitalizations involved staying in the hospital, while somewhat less than half involved staying in a day-bed and going home at night. (Sange, Comparative Analysis)

Since reduced hospitalization was a critical indicator for ZdravPlus, data from the hospital case database in Zhezkazgan, were analyzed. ICD-10 codes (in parentheses below) were used to track prenatal hospitalizations for 11 conditions that do not normally call for hospitalization, according to WHO protocols:

1. Gestational edema and proteinuria without hypertension (O120)
2. Gestational hypertension with significant proteinuria (pre-eclampsia) (O140)
3. Pre-eclampsia, unspecified (O149)
4. Threatened abortion (O200)
5. Infections of the genitourinary tract in pregnancy, including kidney infections (O230)
6. Maternal care due to uterine scar from previous surgery (O342)
7. Polyhydramnios (O40)
8. Oligohydramnios (O410)
9. False labor before 37 completed weeks of gestation (O470)
10. Anemia complicating pregnancy, childbirth and the puerperium (O990)
11. Light for gestational age (P050)

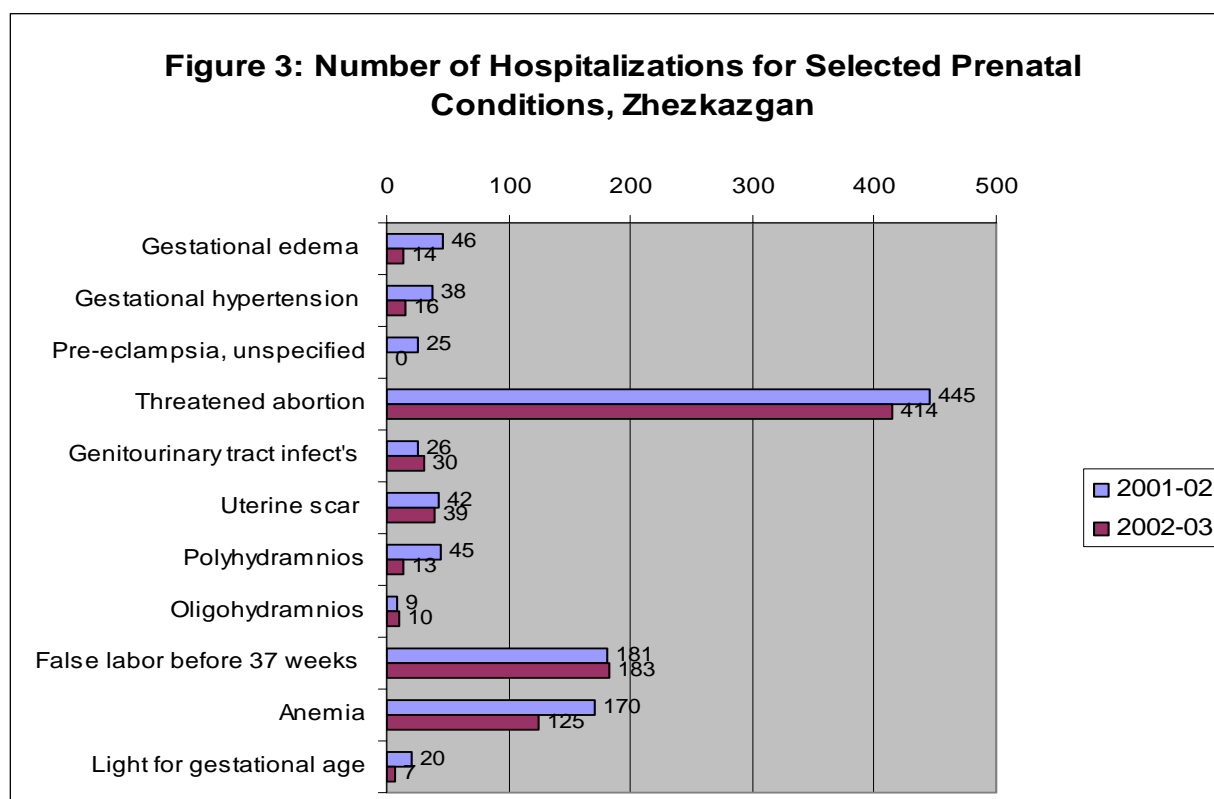
The number of hospitalizations attributable to the 11 monitored conditions fell by 18.7 percent between the pre-implementation and the implementation period. Relative to the number of births in the hospital—which increased slightly in the implementation year—there were 866 discharges for



these conditions per 1,000 births and this fell quite dramatically to 695/1,000 in the implementation year (see Figure 2). If the data from the interviews with women are correct and just 30 percent of women were hospitalized, these figures seem to indicate that some women were hospitalized several times. Along with reduced numbers of prenatal hospitalizations, discharges for the monitored codes

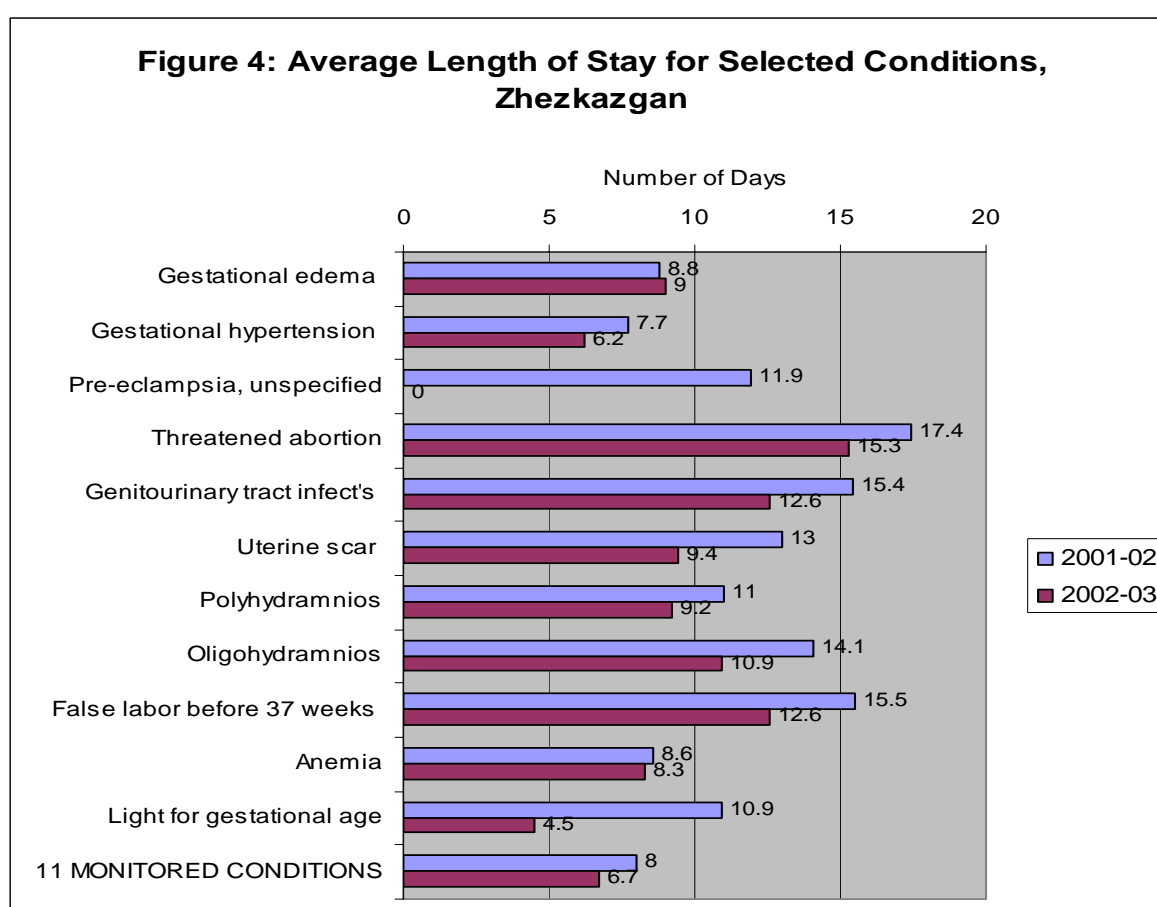
also constituted a smaller share of all hospitalizations—falling from 27 to 21 percent.

There were declines in admissions for nine out of the 11 monitored conditions (Figure 3). The sharpest proportionate declines occurred for polyhydramnios (86 percent drop), gestational edema (65 percent drop), and moderate pre-eclampsia (58 percent decline). In the case of pre-eclampsia (unspecified), the drop to zero could be due to improved diagnosis of specific types of eclampsia, and not always due to reduced hospitalization. Increases in the number of admissions occurred only for oligohydramnios (nine admissions in the pre-implementation period, versus 10 in the implementation period) and false labor (see discussion below).



Within the 11 diagnoses, the largest number of admissions, both before and after implementation of the new approaches, was for threatened abortion (42.5 and 48.6 percent respectively of admissions for the monitored conditions), false labor before 37 weeks' gestation (17.2 – 21.5 percent) and for anemia (16.2 – 14.7 percent). Together, these diagnoses accounted for 76 percent of hospitalizations for the monitored conditions before introduction of the new approaches and 85 percent afterwards. There were declines in admissions for threatened abortion (seven percent) and for anemia (26.5 percent), but the number of admissions for false labor actually increased by 1.7 percent—an increase roughly in line with the larger number of births in the implementation year.

Not only were there fewer admissions for the 11 monitored conditions, but the average length of stay for these conditions became shorter, falling from eight days to 6.7 (Figure 4). The sharpest relative declines in length of stay were for cases of a fetus light for gestational age (10.9 to 4.5 days), for postoperative scar requiring medical care (from 13.0 to 9.4 days), oligohydramnios (14.1 days to 10.9) and moderate pre-eclampsia (from 7.7 to 6.2).*



* Note that the decline in the average length of stay for pre-eclampsia, unspecified from 11.9 days to zero is a reflection of there being no discharges for this condition, rather than a decline in the length of stay.

There was some decline in the prescription of medications during pregnancy (prenatal period),

Table 1: Percentage of Women Reporting Being Prescribed Certain Medications during Pregnancy			
	2002 Zhez/Sat	2003 Zhez/Sat	2003 Zhez Only
Folic acid	50	39	33
Glucose	34	13	13
Magnesium sulfate	45	12	8
Drotaverine (“No-Spa”)	37	20	9
Polyvidone (“Haemodesum”)	18	2	3
Pentoxifylline (“Trental”)	10	1	2
Vitamins/mineral supplements	86	80	81
Iron	58	51	41
Other	35	39	31
None	0	2.5	5

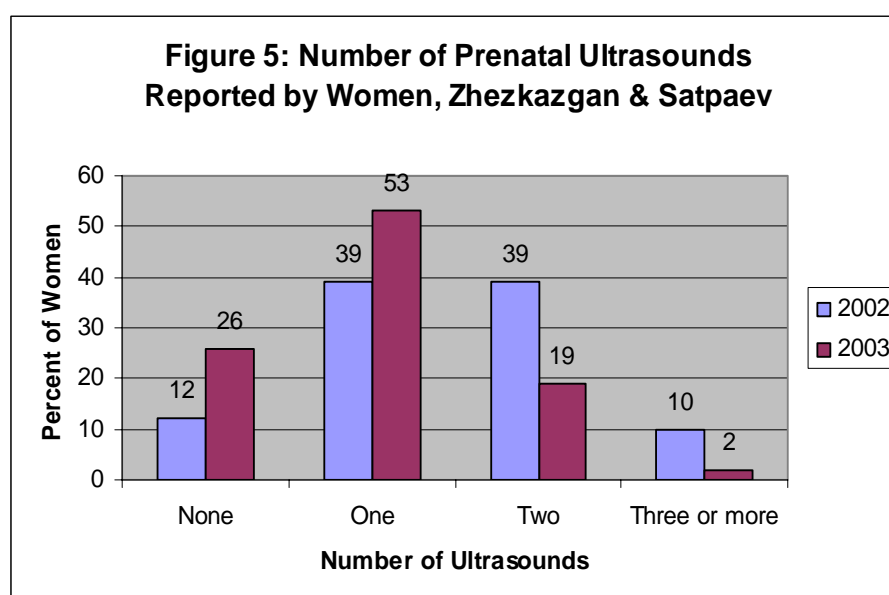
Zhez/Sat = Zhezkazgan and Satpaev cities combined; Zhez Only = Zhezkazgan City only

according to interviews with women in both Zhezkazgan and Satpaev—although almost all women continued to be advised to take a variety of medications (see Table 1.) (Sange, Comparative Analysis)

In the implementation period, there was less prescription of magnesium sulphate, traditionally used to improve circulation or prevent preterm birth, but only indicated for eclampsia and pre-eclampsia under modern, evidence-based protocols; glucose, used

for many conditions, but for which there is no indication; drotaverine (“No-Spa”) a spasmolytic traditionally used for threatened abortion and other conditions, but for which there is no indication; folic acid used for anemia and to prevent birth defects, but which should be used only before pregnancy and early in the pregnancy to prevent birth defects; and polyvidone (“Haemodesum”) used to purify the blood, but for which there are no indications and which has dangerous side effects; pentoxifylline (“Trental”) used to improve circulation in the placenta, but for which there are no indications. There were small declines in prescription of vitamins which are not needed if a woman’s nutritional status is normal and iron, which is only appropriate for women with a hemoglobin level of 11g/100 ml (or 110g/l) or below. In Zhezkazgan, five percent of women received no prescription—an encouraging step in the right direction.

Use of ultrasound during the prenatal period also declined; a positive trend since its use is not recommended for routine surveillance in normal, healthy pregnancies. According to the interviews with women in both cities, the percentage of women not having had an ultrasound at all during the prenatal period increased from



12 percent in 2002 to 26 percent the following year and the percentage having had two or more ultrasounds fell by more than half from 49 to 21 percent (Figure 5). (Sange, Quantitative and Comparative Analysis) The percentage having had one ultrasound increased quite significantly—a positive trend, since screening in the first half of pregnancy has some limited benefits, such as prevention of unnecessary post-term inductions and detection of multiple pregnancies.

From the perspective of women themselves, pregnancy is becoming less thought of as an illness that requires medicines and special health care. In 2003, more than 99 percent of all the women interviewed in both Zhezkazgan and Satpaev thought of it as a normal condition, compared with only 69 percent in 2002. (Sange, Quantitative and Comparative Analysis)

3. Information Given to Women

A key function for the doctor or midwife providing prenatal care is to give women information about healthy lifestyles during pregnancy and to prepare them and their partners for childbirth and a new baby. Even before the project, almost all women in Zhezkazgan/Satpaev reported being given information during their prenatal visits. By the time of the endline survey in 2003, 99 percent of women in Zhezkazgan stated that they were satisfied with the amount of information they received. Almost all said they received information about preparation for childbirth, positions during delivery and the presence of a partner (Figure 6). A majority had received information about vitamins or mineral supplements, proper nutrition, work and rest, the consequences of taking medications, what to do when labor begins and on breastfeeding. Less than half, however, said they were informed about physical activity, sexual activity, smoking or contraception, so there is still considerable room for improvement. (Sange, Comparative Analysis)

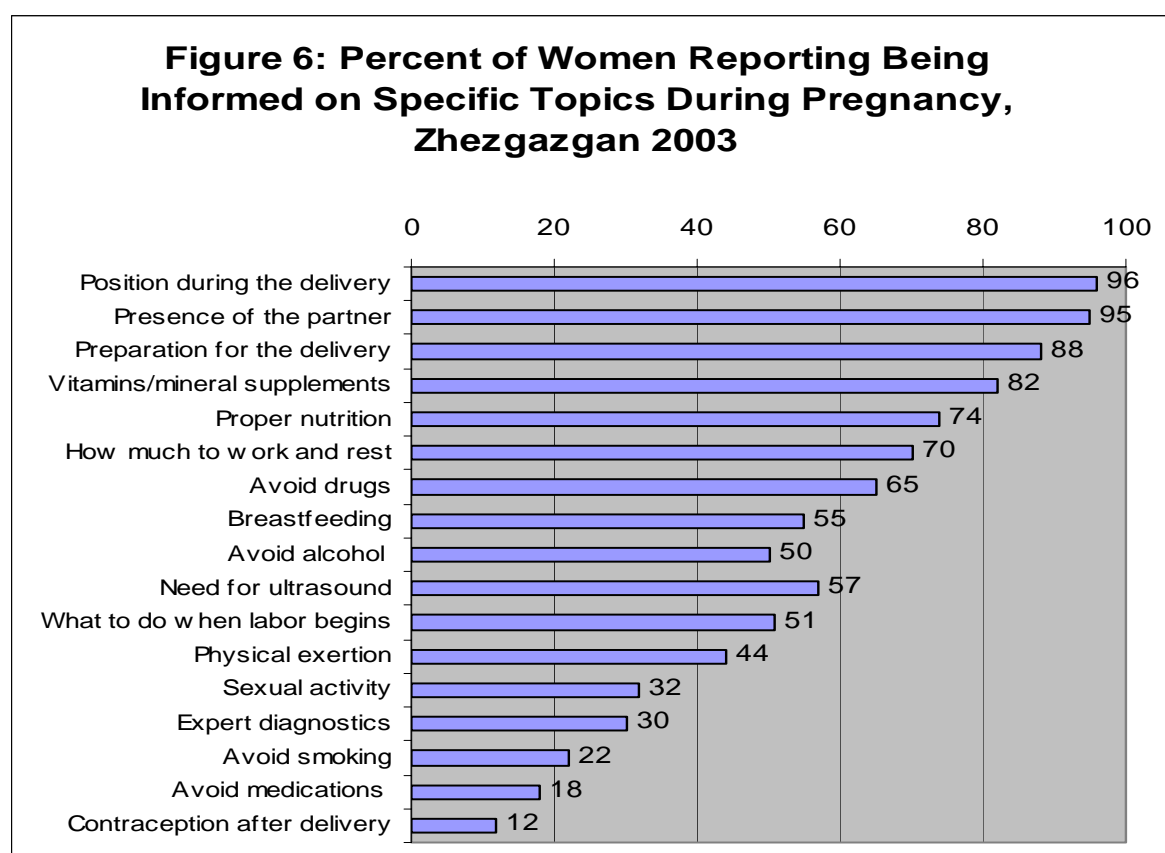


Table 2: Percentage of Women Reporting Being Informed of the Warning Signs during Pregnancy

	2002 Zhez/Sat	2003 Zhez/Sat	2003 Zhez Only
Vaginal bleeding	79	61	82
Severe abdominal pain	77	36	88
Fever/rise in temperature	57	29	40
Severe headaches	24	50	60
Blurred vision with spots and flashes	21	4	6
More than 4-5 contractions per hour	8	59	60
Convulsions	18	44	57
Fast or difficult breathing	3	11	13
Burning pain when urinating	8	7	7
Warning signs not mentioned	0	0	0

Zhez/Sat = Zhezkazgan and Satpaev cities combined; Zhez Only = Zhezkazgan City only

4-5 contractions per hour, but only half the women or less were informed about other warning signs. In Zhezkazgan, during the implementation period, more than half the women reported having been told about one or more of five warning signs. (Sange, Quantitative and Comparative Analysis)

4. Women's Attitudes

Pregnant women interviewed in the survey generally felt that they were treated with respect by their care provider, although there is room for improvement on this measure. In 2003, 60 percent of Zhezkazgan women said they were always treated with respect, 38 percent said usually and two percent sometimes. None reported that they were never treated with respect. (Sange, Comparative Analysis)

In both years, women in Zhezkazgan and Satpaev associated good quality prenatal care with a healthy way of life (76 percent in 2002, 90 percent in 2003), a highly qualified doctor (70 and 55 percent), proper nutrition (58 and 46 percent) and vitamins and/or mineral supplements (55 and 34 percent) and a doctor who knows you/understands your situation (37 and 25 percent). Only small percentages of women associated quality care with other more medical considerations, such as a large number of prenatal visits, ultrasound scans, medications or hospitalization. It is noteworthy, though; that only five percent of women in 2002, and six percent in 2003, thought that quality care meant as little medical intervention as possible. (Sange, Quantitative and Comparative Analysis)

It is particularly important that women understand the warning signs in pregnancy, and when they should seek immediate medical attention. Table 2, shows the percentage of women who say that they were informed about specific warning signs. While all women were informed of at least one warning sign, overall knowledge of these signs was not good and knowledge actually declined between the two years on more than half of the warning signs. Large numbers of women said they were told about vaginal bleeding and more than

Table 3: Percent of Women Satisfied with Prenatal Care			
	2002 Zhez/Sat	2003 Zhez/Sat	2003 Zhez Only
Completely satisfied	43	49	69
Satisfied	40	42	29
Partially satisfied	15	9	2
Not satisfied	2.0	0	0

Zhez/Sat = Zhezkazgan and Satpaev cities combined; Zhez Only = Zhezkazgan City only

As can be seen in Table 3, there was an increase in women's overall level of satisfaction with prenatal care in Zhezkazgan/Satpaev, with 91 percent either completely satisfied or satisfied in 2003, compared with 83 percent a year earlier.

Zhezkazgan achieved relatively high levels of satisfaction, with almost seven out of 10 women completely satisfied, another 29 percent satisfied—and only two percent partially satisfied. Satisfaction with prenatal care was notably higher among new mothers than among pregnant women in Zhezkazgan. Ninety percent of the new mothers were completely satisfied and the remaining 10 percent were satisfied. Among pregnant women, by contrast, just 49 percent were completely

satisfied, with another 47 percent satisfied and four percent partially satisfied, indicating that there is still room for improvement in outpatient facilities. (Sange, Quantitative and Comparative Analysis)

"The number of cesarean sections decreased. For example, if before we used to have ten to eleven percent of surgical delivery, now we have only eight percent and we are aiming at an even lower number. Why did it happen? Because the women didn't have a natural birth. They just lay in bed, they didn't walk. Now they are more active during the delivery: they can walk, they can stand, and that is why there are fewer cases when we have to do a C-section. Another factor is that we let women who had a previous C-section deliver naturally. Before we didn't do this. If there was a scar on the uterus, we always did a C-section." *Staff member from the Zhezkazgan Maternity House*

Another way of looking at satisfaction is to ask women who have experienced a previous pregnancy whether the care provided for the current pregnancy is better, worse or the same. While the numbers of women who had had a previous birth were too small to be

statistically reliable, the indications are that they were more satisfied with the recent experience. Seventy-eight percent of the women in Zhezkazgan in 2003 said that care was better than before and 16 percent thought it was the same. Interestingly, six percent thought it was worse than before. (Sange, Comparative Analysis) This may be because a number of women were accustomed to the previous practices and were averse to change.

C. Changes in Care for Delivery

1. Normal versus Complicated Births

There was a clear tendency toward more normal, uncomplicated deliveries, despite the hospital staff's concerns that demedicalized care would lead to more complications during pregnancy and childbirth.

Interviews in 2003 with women in Zhezkazgan who recently gave birth indicated that 90 percent had had a normal, uncomplicated birth, as compared to only 74 percent in Zhezkazgan/Satpaev in 2002. All women in both cities said that their child was born healthy, compared with only 90 percent in 2002. (Sange, Quantitative and Comparative Analysis) These figures may not be an accurate reflection of reality, though, since they come from women and not from medical records.

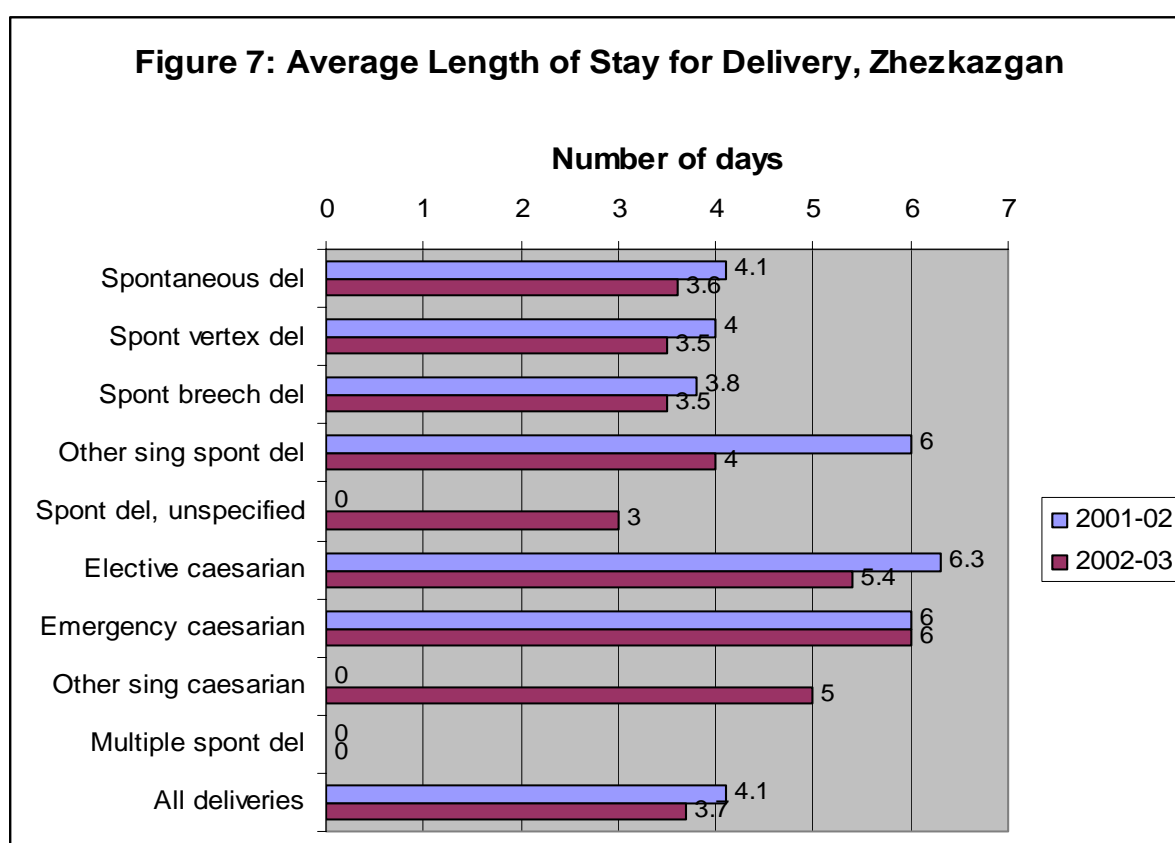
Even though the Zhezkazgan Maternity Hospital had a caesarian rate in the normal range, the data point to lower levels of caesarian births after project implementation. According to the hospital case database, the percentage of births by cesarean declined from 9.7 percent pre-implementation to 8.4

percent during the implementation period. Some of the possible reasons for this are captured in the adjoining textbox.

According to official Zhezkazgan statistics, there was a significant drop in the percentage of births where an episiotomy was performed—from 12 percent in 2001/2002 to four percent in 2002/2003. Contrary to the desired trend, it appears that the percentage of births with forceps increased slightly from three to five percent across the two cities—in Zhezkazgan it stood at just two percent in 2003—while ventouse extractions fell from one percent to zero. (Sange, Quantitative and Comparative Analysis) However, these data are from the survey of women who recently delivered and the numbers are too small to be reliable, so they should be viewed with caution.

The number of induced labors remained essentially stable at about 12 percent of all births in both years (12.1 percent in 2001/2002 and 11.8 in 2002/2003), according to official Zhezkazgan statistics. Induction should only be done when there are clear indications, and not routinely, according to WHO guidelines. Stimulated labors decreased from 15 to eight percent in the same time period, according to official statistics.

Consistent with these lower levels of complicated births, the average length of stay in the hospital declined from 4.1 to 3.7 days, according to the hospital case database, with shorter stays seen for all types of births, particularly for elective caesarians (Figure 7.)



The interviews with women showed that women were less likely to have been attended by an ob-gyn during childbirth in 2002 than before the pilot project. (Sange, Quantitative and Comparative Analysis) While 97 percent of women in Zhezkazgan/Satpaev said that an ob-gyn had been present in 2002, by 2003 this had fallen to 66 percent—and stood at just 49 percent among women in Zhezkazgan. Surprisingly, given the emphasis on the role of midwives in the training, the percentage of women reporting that a midwife was present at the birth fell from 88 to 78 percent (78 percent in Zhezkazgan.) According to the women in both cities, surgeons, anesthetists and neonatologists were

all present significantly less frequently in 2003 (presence of surgeons fell from 22 to two percent; anesthetists, from 18 to eight percent; neonatologists, from 21 to one percent.) On average, women reported that they were attended by 1.5 medical personnel, compared with two people in 2002.

The attitudes of new mothers in both cities toward being attended by a midwife did not change greatly after implementation of the new practices. Both before and after the new program, 62 percent of women thought it was a good idea for a midwife to attend births, but, while five percent opposed midwives' attendance before the program, this fell to just one percent in the implementation phase. Accordingly, the percentage thinking that "maybe" a midwife could attend grew from 33 to 37 percent. There was a much more significant shift in attitudes toward family doctors attending childbirth. While 50 percent of new mothers in 2002 either approved of this idea or thought that "maybe" family doctors could attend, this proportion grew to 85 percent in 2003 (in 2002, 25 percent thought it was a good idea and another 25 percent thought that "maybe" it was a good idea; in 2003 these percentages were 42 and 43 respectively.) Opposition to family doctors attending births also declined from 39 to 15 percent. The reasons for this shift are not clear. (Sange, Quantitative and Comparative Analysis)

The partogram was introduced during the training as a simple and effective aid to appropriate management of labor, with many advantages over written notes. The partogram displays progress in cervical dilation, along with other information about the status of mother and baby and progress in labor. Timely filling in of the partogram has been shown to lead to fewer births with fetal asphyxia. Zhezkazgan Maternity Hospital staff analyzed their work for the first half of 2003 and found that 75-80 percent of births during this period were managed by filling in partograms. In the words of a staff member at the maternity hospital, "Before that we had to write everything, it was a lot of paperwork. Now we just fill in the blanks and it helps a lot. So we don't have to have extra writing, we just need to use these forms."

2. Demedicalization

There was considerable progress in making childbirth a less medical experience for women and their families after the project was implemented.

Ultrasound was less frequently used for women during their hospital stay for childbirth, according to the survey of women who had recently delivered. Eighty percent of these women in Zhezkazgan did not have an ultrasound in 2003. For the two cities, the percentage of women not having an ultrasound fell from 90 to 85 percent between 2002 and 2003. (Sange, Comparative Analysis)

There was also a clear downward trend in some routine screening procedures, according to statistics from Zhezkazgan Maternity Hospital. Blood, urine, vaginal smears and other tests during prenatal visits and hospitalizations declined dramatically between the first half of 2002 and the same time period in 2003. The number of blood tests decreased from 1,034 to 289 and urine tests fell from 813 to 243. There was also a dramatic drop in vaginal smears to detect infections from 1,023 to just 24. These tests have not been shown to have a positive impact on maternal care, so this decrease is a positive development.

The routine administration of analgesic drugs and enemas and the shaving of pubic hair before birth were abandoned in the maternity house. As a staff member at the Zhezkazgan Maternity Hospital observed, “Our treatment clinical protocols were absolutely different. We used to treat a lot of gestosis which we don’t treat now and we gave a lot of drugs to women, sometimes unnecessarily. But we had to do it because we were controlled and if we didn’t prescribe these drugs we would be punished. Now we have a different attitude, different protocols...” In the words of head doctor, Serik Tuleybaev, “Demedicalization means that we not only give fewer drugs to patients, but we also don’t make any unnecessary interventions during the pregnancy – so we are less aggressive...” Other practices used less than before include routine use of a supine position (lying on back) in the first stage labor, routine use of a lithotomy position for childbirth (with or without stirrups) and routine use of episiotomy.

Routine (and generally unnecessary) “cervical examination” after childbirth with the aid of a speculum was performed in only 26 percent of births in the first half of 2003, according to Zhezkazgan Maternity Hospital statistics. Serik Tuleybaev, Head Doctor, explained, “We now try to put ourselves in the place of the patient and realize that, after the baby is delivered, when we put an instrument into the vagina to do an examination, of course, that is traumatic! Also it was usually done without anesthesia. We used to say ‘everyone gives birth - you will overcome the pain.’” Now, hospital staff are more sensitive to patients. Nevertheless, there is still a clear need to reduce this level further.

In the past, according to interviews with Zhezkazgan Maternity Hospital staff, “there was a special delivery department where women delivered their babies, and sometimes three to four women were together for delivery. But after the training we changed the set-up and made it so that there is only one woman in each room. The woman stays in the same room throughout her entire stay in this

The story of 32 year-old Gulshyan illustrates some of the changes at Zhezkazgan Maternity Hospital. Gulshyan gave birth to her second child at the hospital soon after it began implementing the new practices and her experience was completely different from her first birth in 1996 when her daughter Saniya was born. Here is Gulshyan’s story, in her own words just after delivery, with her family gathered about her bedside. The little baby boy was quietly sleeping next to them.

“This delivery experience had a lot of new features... I was in the hospital twice during this pregnancy and started hearing about changes in this hospital. When I was brought into the hospital to deliver, I was asked what position I wanted to use. But I couldn’t decide. During the labor stage I walked and sat on a big rubber ball. It was very comfortable to sit on the ball, very relaxing. I ended up delivering in a semi-reclining position. It seemed very strange to me to deliver on the regular hospital bed. I thought about going to the traditional delivery chair, but then I decided to try this new method and everything went very smoothly without any complications. One thing that was very unusual was that the nurse did not put any ice on my stomach as they did in my first delivery *[traditional soviet practice advocates the use of ice on the stomach to promote contractions.]* I remember very well how cold and shaky I was the first time as a result of the ice. They put my baby on my stomach right after he was born, and after 30 minutes the midwife came and showed me how to breastfeed my son. My baby was dressed in his own clothes, not swaddled tightly, and his hands were left free. Throughout labor the midwife helped me, and I felt the support of my husband who was holding my hand.”

And what did Gulshyan’s husband think of this new experience? “I wasn’t ready for this experience but I had heard from my friend that this was possible. When we came to the hospital for delivery I was asked if I wanted to stay with her, so I decided right away to stay with my wife. I think that this experience would be helpful to any father. After this, you have a different appreciation for your wife and baby. During labor, I didn’t know how to help her... so I just stayed next to her and held her hand.”

Hospital staff are learning to put patients first. “At first there was a special delivery department for women who were delivering at the same time. It was easier for one doctor and for one obstetrician to take care of all four of them. Now they are all in different rooms, and that makes it a little more difficult for us. People get very tired of going back and forth, rushing between different rooms. Staff also have to tote materials from room to room. It is very difficult, that is why maybe we would like to have more funding so that we could have more staff in this case. Especially for nurses it is very difficult because they have to take care of so many women at one time, to clean everything, to bring everything back and forth.”

“If a woman chooses a vertical position for example, it is very difficult for the doctor to deliver the baby, and there is no special equipment to help the woman to press her hand against something when she delivers vertically, maybe special beds where one part can be declined. For us it is inconvenient, but for the women it is convenient.”

hospital—she delivers and takes care of her baby in one room.” The staff observed that they “used to be punished if our women delivered in the bed, not in the special delivery department. We had to be very careful if we thought that delivery is close, then we had to take the woman into the special delivery hall and if the delivery was earlier we were punished.”

By 2003, 87 percent of new mothers in Zhezkazgan said they had given birth without other women present in the same room. Across Zhezkazgan and Satpaev, there was a significant increase on this measure after project implementation. In 2002, just 49 percent of new mothers in the two cities gave birth without other women present in the room, but that grew dramatically to

72 percent in 2003. Women’s attitudes also changed. They became less willing to give birth in the same room as other women. Before the new program was introduced, 53 percent of pregnant women were willing to share, but that fell to 23 percent by 2003. (Sange, Quantitative and Comparative Analysis)

One of the most difficult transitions was from sterile deliveries, as required by the SES, to simply “clean” deliveries. Serik Tuleybaev explained that to convince the SES, he took the head of the agency to a meeting in Almaty to hear international experts discuss the evidence and afterwards he agreed to follow the new approaches. The maternity hospital abandoned the disinfection of rooms, wards, furniture and bedclothes. “It was difficult for us to think about allowing free visiting of relatives during delivery and changing sanitary norms,” the staff of the Zhezkazgan Maternity Hospital explained. “We always used to sterilize the walls, the room and all materials, so we were shocked by the presentation of this new program.” Despite the assumption by hospital staff that changes in infection control rules would lead to increased complications after childbirth, the Zhezkazgan Maternity Hospital registered no cases of omphalitis (infection of the umbilical cord) or cases of repeated hospitalizations due to suppurative infections (infections of the uterus) among women who were hospitalized during the implementation year.

The WHO program encourages women to choose their own position in the second stage of labor because it reduces discomfort, abnormal delivery, perineal trauma and infections. “We used to think that if a woman delivered in a vertical position there will be a lot of complications like broken tissues and so on,” Serik Tuleybaev reported, “but actually we had the opposite result.” There were dramatic changes in this regard. In 2002, only 19 percent of the women who recently gave birth in the two cities said they had chosen their own position for childbirth and 81 percent gave birth flat on their backs. In 2003, by contrast, over 97 percent had chosen their position and only 47 percent gave birth flat on their backs. In Zhezkazgan, 100 percent of the women said they had chosen their position and only nine percent reported lying flat on their back. (Sange, Comparative Analysis) The reaction from women was not always positive. “In the beginning there was a negative attitude because they couldn’t understand the changes,” the staff of the Zhezkazgan maternity unit reported, “but after it was explained to them they started to take it positively. The negative attitude was toward delivering in the bed and not in the special chair. Those women who already gave birth were used to giving birth

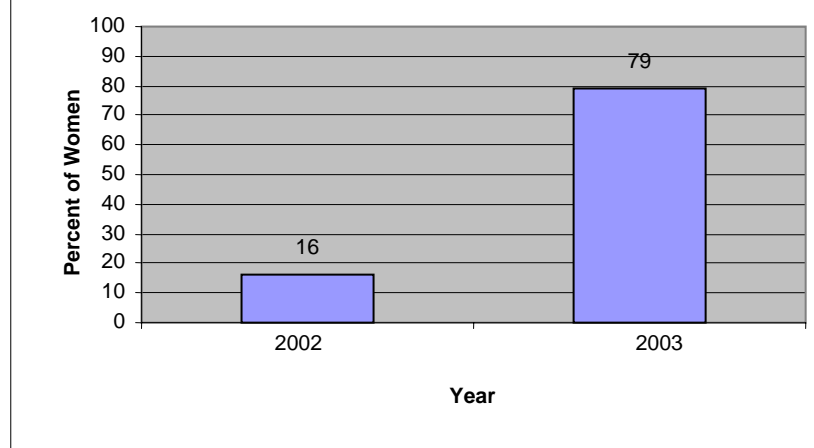
under special conditions - having a special gynecological table, delivering in the horizontal position. So it was all new for them to be able to have different positions during the delivery. But those who are giving birth for the first time, it is easier to work with them because it is natural for them.”

The presence of a supportive companion has been shown to reduce the length of labor, reduce the need for pain relief and surgical delivery and to improve neonatal outcome. However, this is very unusual for Kazakhstan and, according to the surveys—and as seen in the results of the focus groups—women were uncertain whether or not they wanted companionship. Nevertheless, the percentage of new mothers in Zhezkazgan who reported that they had a companion present at the birth—although sometimes they were only present during contractions—grew very substantially,



according to the surveys. As can be seen in Figure 8, only 16 percent had a companion present in 2002, but this rose to 79 percent in 2003. All the women who had partners present for the birth acknowledged that it helped them. (Sange, Quantitative and Comparative Analysis)

Figure 8: Presence of a Companion at Delivery, Zhezkazgan



In the past, women were not normally allowed to drink water, but by 2003, 61 percent of new mothers in Zhezkazgan said this was allowed—although 11 percent said it was still prohibited. (Other women didn’t know or said they weren’t thirsty.) There was some improvement in this indicator between 2002 and 2003. The baseline survey showed that only 42 percent of new mothers in Zhezkazgan/Satpaev said

they were allowed to drink water, while 38 percent reported that it was prohibited. By 2003, 50 percent in the two cities said they were allowed to drink water and only 14 percent said it was prohibited. (Sange, Quantitative and Comparative Analysis)

D. Newborn Care and Patient Satisfaction

Almost all women said, in the interviews, that they would like to have their own room after giving birth and, in 2002, before the new practices were implemented, 66 percent of new mothers in Zhezkazgan did so—though many had to pay for this privilege. In 2003, by contrast, 100 percent had their own room, without having to pay extra. All the new mothers also had their baby staying with them in the same room—a slightly higher figure than the previous year. (Sange, Quantitative and Comparative Analysis)

All the women who had recently given birth in Zhezkazgan said that they were allowed to hold their babies immediately after birth in 2003. Ninety-seven percent had “skin-to-skin” contact immediately after the birth, compared with only 85 percent in Zhezkazgan/Satpaev in 2002. (Sange, Comparative Analysis) Frequent mother-to-infant skin-to-skin contact reduces the risk of disorders such as hypothermia.

Ninety-six percent of women in Zhezkazgan/Satpaev who had recently given birth were advised to breastfeed the baby right after birth in 2003, compared with only 88 percent in 2002. (Sange, Comparative Analysis) And 99 percent of women in both cities were told to feed their newborn baby on demand—rather than on a fixed schedule—as compared to 97 percent in 2002. Just over two-thirds of new mothers (69 percent) said that they had received instructions on how to breastfeed their baby, while 31 percent said they already knew. None said that they had not been instructed. (Sange, Comparative Analysis)

The postpartum period provides an opportunity for the mother and baby, together with the partner or other family members, to begin to find new ways of relating to each other while incorporating the new baby into their lives. Husbands/partners should be encouraged to visit and helped with any concerns about their new family situation. The vast majority of women want their relatives or close friends to be able to visit them in the hospital after childbirth. The percentage of new mothers in Zhezkazgan whose friends and relatives were actually allowed to visit them in the hospital grew from 54 to 87 percent. Nevertheless, 13 percent reported that this was not allowed. (Sange, Comparative Analysis) “With our experience we can see that, for example, patients, they are visited by their relatives and we don’t have any increase in disease. We see that there is no complication because of



this, but SES doesn’t see it that way,” says Serik Tuleybaev.

Among new mothers in Zhezkazgan in the implementation period, 98 percent reported always being treated with respect and two percent said they were usually treated with respect. None reported that they were never treated with respect. Comparing attitudes in both Zhezkazgan and Satpaev over the two years, just 58 percent felt they were treated respectfully before the new practices were implemented, compared with 80 percent afterwards. (Sange, Quantitative and Comparative Analysis)

When asked about what constitutes quality care for delivery in the hospital, the great majority of women considered a friendly environment and a highly qualified doctor to be the key elements, both

before and after implementation of the new practices. However, there was a tendency for women in both cities to associate less medicalized care with quality care by the end of the project. While in 2002, only 16 percent of women considered it important to have as little medical intervention as possible, by 2003, this had increased to 27 percent among new mothers. And women began to consider the presence of a husband or close relative during childbirth more important. In 2002, only 15 percent of women considered this to be part of quality care, but by 2003, 44 percent women viewed it as such. There was also a slight increase in acceptance of a midwife to attend the birth: from three percent of women to 11 percent. And, while only small numbers of women associated anesthesia and ultrasound with quality care in both places, these became clearly less important. A sterile environment in the hospital was also an important consideration for women but it declined in importance. (Sange, Quantitative and Comparative Analysis)

Satisfaction with hospital care during delivery increased among new mothers once the new practices were implemented. As can be seen in Table 4 below, while 80 percent of new mothers in Zhezkazgan/Satpaev were satisfied in 2002, that percentage grew to 96 percent in 2003. And in Zhezkazgan, virtually all women (98 percent) said they were completely satisfied. (Sange, Quantitative and Comparative Analysis)

Table 4: Percent of New Mothers Satisfied with Hospital Care During Delivery			
	2002 Zhez/Sat	2003 Zhez/Sat	2003 Zhez Only
Completely satisfied	40	66	98
Satisfied	40	30	2
Partially satisfied	18	4	0
Not satisfied	2	0	0

Zhez/Sat = Zhezkazgan and Satpaev cities combined; Zhez Only = Zhezkazgan City only

When new mothers in Zhezkazgan who had had a previous birth were asked (in 2003) how this birth compared with their prior experience, 58 percent said they thought it was better, 13 percent thought it was about the same—but a substantial 29 percent thought it was

worse than before. (Sange, Comparative Analysis) There are a couple of possible explanations for this high disapproval rating. One could be purely statistical, since there were few women in the sample with a previous birth. Another possibility, as mentioned by Zhezkazgan Maternity Hospital staff, is that women who have had a prior birth are accustomed to old ways of doing it and are reluctant to change.

E. Impact on Cost

Based on international evidence, implementation of the new approaches to Safe Motherhood in Zhezkazgan should, over time, lead to improved health outcomes—particularly when the basic MPS/PEPC package is complemented by modern techniques for management of complications. One of the overall objectives of the pilot project was to demonstrate the cost effectiveness of modern evidence-based approaches to Safe Motherhood. A significant success of the pilot in Zhezkazgan was the ability to demonstrate and enhance the synergies between the broad health system and financing reforms occurring in Kazakhstan and the facility level changes in clinical practice and quality improvement achieved through the introduction of Safe Motherhood. Early results show that these synergies do exist. The health financing and system level reforms give the hospital more autonomy and generally allow reinvestment of savings, while the improvements in service delivery, following evidence-based practices, in turn, validate and solidify the system-level reforms. The Zhezkazgan pilot project demonstrates that the implementation of the new approaches leads to the demedicalization of care, including a shift from inpatient and specialty services to primary health care, fewer prenatal

visits, reductions in unjustified hospitalizations, shorter hospital stays and fewer pregnancies classified and treated as “complicated.” These changes lead to cost reductions and increased efficiency of the health system as a whole.

Shifting from inpatient to outpatient care, by improving access to prenatal care through primary health care facilities, provides more cost effective, preventive services closer to the population, while also allowing for a more efficient and integrated referral system to specialty physicians and hospitals. In Zhezkazgan, as noted in the WHO consultant’s needs assessment, prenatal care in the hospital outpatient facility, where virtually all prenatal care was provided prior to the pilot project, seemed to serve as a “net” to catch sufficient patients to guarantee bed occupancy in the hospital. This observation reflects the realities of the old financing system, where hospitals were given an annual budget based primarily on bed numbers, hospitalization levels, and patient length of stay.

In Kazakhstan, with Zhezkazgan City and Karaganda Oblast among the leaders, the health financing reforms are moving away from the old state procurement budget input system. A new “case-based” hospital payment system is being implemented, that reimburses hospitals for delivering services to patients rather than maintaining infrastructure. This system gives facilities increased budget autonomy and flexibility, including the ability to reinvest savings. Without this shift in financing, hospitals would have little incentive to implement programs such as MPS/PEPC that reduce hospitalization and length of stay for certain conditions. In the old hospital financing system, a reduction in hospital admissions and length of stay would lead to a reduction in the overall hospital budget, creating incentives to maintain high levels of hospitalization. By shifting to a case-based payment system, and allowing hospitals increased autonomy to reinvest potential cost savings, hospitals are encouraged to pursue programs such as Safe Motherhood that promote improved health outcomes at the same time as increasing efficiency. It should be noted that the hospital payment system is currently in transition with a mix of the old and new finance systems in place, making it difficult to completely separate and identify the impact on the Safe Motherhood pilot project.

An analysis of cost data from the hospital payment system database found that the number of hospitalizations at the Zhezkazgan Maternity Hospital for the 11 prenatal conditions monitored in the pilot project was reduced. The cost savings of this reduction in hospitalizations are estimated to be 13 percent of the overall costs of the 11 monitored conditions in the pre-implementation period¹. This is a significant cost savings resulting from the implementation of the Safe Motherhood program. A decrease in hospitalization leads to an increase in overall health system efficiency and enables a shift to more cost-effective primary health care. By increasing efficiency at the same time as maintaining or increasing the overall health system budget, savings can be reinvested within the health system, strengthening primary health care and, over time, also increasing the payment per case to hospitals to treat patients and conditions that call for more intensive medical services and resources. While other savings have not been quantified in this report, it is highly likely that the shifts from hospital-based prenatal care to outpatient care, to less complicated deliveries with shorter lengths of stay, fewer laboratory tests and reduced use of drugs, are also producing savings. For example, Serik Tuleybaev reported, “We have real savings, first of all on drugs and sterilization materials. We’ve saved no less than 30 percent.”

In order to encourage hospitals to implement programs such as Safe Motherhood, it is critical that the cost savings associated with reduced hospitalization levels do not result in a decrease in the hospital’s budget the following year, as would have occurred under the old payment systems. In order

¹ Estimated cost savings were calculated by multiplying the average base rate of reimbursement in the pre-implementation year (year one) times the reduction in admissions across the pre-implementation year and the implementation year (years one and two.)

to confirm that the cost savings (estimated to be 13 percent) realized by the decrease in hospitalizations did not result in a decrease in the hospital's budget, the total payment for the 11 prenatal conditions was calculated for the implementation year (year two), using the average rate of reimbursement per case for that year, and compared to the total payment for the pre-implementation year (year one.) The total payment for the 11 monitored conditions in the implementation year actually increased by 11 percent over the previous year. As described above, the health financing system is in transition and there are a number of factors affecting overall hospital payment, including changes in the payment system and flow of funds, the reinvestment of savings from reduced hospitalization into a higher payment rate per case, and increases in the overall budget. Thus, the net impact for the Zhezkazgan Maternity Hospital was no budget reduction or penalty for implementing the Safe Motherhood pilot project.

This also suggests that the 11 percent increase was reinvested within the hospital in other areas that required or could benefit from a higher level of investment. Currently, resources are limited for serious cases for which hospitalization is essential—those cases which are very severe, and resource-intensive. As unnecessary hospitalizations are reduced, the percentage of severe cases in the hospital at any one time will rise. Under a case based reimbursement system, it is expected that, as a result of this rise in percentage of severe cases and intensity of services, the base rate of reimbursement for these cases will increase over time. This allows the hospital to provide higher intensity services for those patients who really need them, rather than focusing on treating patients who are unnecessarily hospitalized.

The implementation of the Safe Motherhood pilot project in Zhezkazgan has demonstrated the potential for significant improvement in resource-efficiency at the maternity hospital, as well as in the overall health system. Demonstrating a reduction in both the number of hospital admissions and average length of stay for the 11 prenatal conditions speaks of the ability of Safe Motherhood interventions to positively influence the way certain clinical cases are treated, which in turn leads to an improvement in system efficiency and a reduction in unnecessary costs. Also, the overall increase in budget funding for the 11 monitored conditions at Zhezkazgan Maternity Hospital, despite the reduction in hospital admissions, indicates that facilities are able to implement these changes without loss to their overall budget. This in turn should enable hospitals to more freely allocate resources where they are needed.

While the financing systems in Kazakhstan are still in transition, the results of the Safe Motherhood pilot indicate that the introduction of reforms in the content of clinical care, designed to improve the quality of care through international, evidence-based approaches go hand-in-hand with the introduction of new hospital payment systems. Together, the advancement of health financing systems and the introduction of programs such as Safe Motherhood have a synergistic effect, promoting higher quality, more efficient and equitable care, while allowing for sustained reinvestment of cost savings to those areas of the health system that need them the most.

IX. Summary and Conclusions

Until recently, pregnancy, delivery and newborn care were highly-medicalized experiences for most women in Zhezkazgan, in Karaganda Oblast, as in other parts of Kazakhstan. A 2002 assessment undertaken for ZdravPlus by a WHO consultant revealed that health care providers viewed 85-90 percent of pregnancies to be “at-risk” and they considered the main purpose of prenatal care to be screening for pathologies and referring when problems were found. Already required to make large numbers of prenatal visits, even for uncomplicated pregnancies, this highly medical approach meant that women were referred to several specialists, given various medications, went through batteries of lab tests and screenings, and about half were hospitalized during the prenatal period. Delivery and newborn care followed similar patterns. The majority of pregnant women expressed fear about labor and delivery, fear for their own health and that of their baby. Both men and women indicated that they would like more information about pregnancy and delivery, and a more caring attitude from midwives and doctors during delivery to overcome such fears. A shift was needed toward less medicalized, more woman- and family-centered care and toward evidence-based approaches.

Working with authorities in Zhezkazgan, who were eager to try new ways to improve pregnancy outcomes, ZdravPlus joined with WHO/Europe to introduce modern, evidence-based approaches to prenatal, delivery and newborn care in the maternity hospital and outpatient FGPs, following WHO’s MPS/PEPS program. In so doing, the project sought to improve the quality of perinatal care, while also demonstrating the cost-effectiveness of these approaches. Key interventions were:

- A lengthy planning process involving policy dialogue with local authorities. Orientation meetings were held for policy makers to explain and discuss the new approaches with WHO consultants and ZdravPlus staff. SES was involved in these orientations to help persuade its staff to waive its inspections and fines for health workers who do not comply with antiquated infection prevention requirements.
- Focus group discussions with women and their families to determine their perspectives on prenatal, delivery and newborn care, as provided under the Soviet system and as proposed in the new WHO approaches.
- Three different training courses: one for ob-gyns and midwives in the maternity hospital; one for neonatologists and nurses in the hospital; and one for ob-gyns and midwives working in outpatient FGPs. All courses were taught by WHO consultants, using WHO materials and included practical sessions allowing participants to practice the new techniques under the eye of their trainers. To reinforce the dramatic shifts in practice embodied in these courses, follow-up visits were conducted to providers at their worksites, using WHO tools. Selected health workers were trained in Russia to monitor and support providers, using these tools, both in FGPs and in hospitals.
- Education for women and their families about how to care for themselves during pregnancy and what to expect during the prenatal period and delivery. Informational brochures were developed for women and their partners and a short video was disseminated.
- A study tour to Lithuania was organized to allow key participants and MOH officials to see the shift in obstetrical practices that has been underway for several years in that country.
- Limited amounts of essential equipment were purchased and donated to the maternity hospital.

To assess the impact of the pilot project, several approaches were used. First, data from the hospital case database in Zhezkazgan was used to analyze trends in hospitalization. Second, pregnant women and new mothers were interviewed in surveys before the pilot project and about a year later. And third, for some indicators, official statistics from Zhezkazgan and from the maternity hospital were used. All of the evaluation data compare the pre-implementation period in 2002 with the first year of

implementation in 2003—in most cases July 2001 to June 2002 is compared with July 2002 to June 2003.

A summary of the key results are presented here, showing progress toward the recommendations in the pre-project assessment. Conclusions about issues that need to be addressed are also included.

Care for Normal Pregnancy and Birth should be Demedicalized

The average number of prenatal visits per woman fell dramatically from 12 to six, although the percentage of pregnancies considered “normal” increased only from 12 to 21 percent—still a very low proportion relative to WHO’s guideline of around 85 percent, but an improvement nonetheless. Nevertheless, 99 percent of women were referred to an internist—probably because of prikazes requiring that all pregnant women see an internist—and on average, each woman was referred to 2.4 specialists. Three out of four women reported that they had been told they had at least one condition complicating pregnancy, most often anemia brought on by pregnancy and/or kidney or uro-genital diseases. There were some encouraging declines in prescription of all monitored medications, including magnesium sulphate, traditionally used to improve circulation, but only indicated for eclampsia and pre-eclampsia under evidence-based protocols; glucose which was used for many conditions but for which there is no indication; polyvidone (“Haemodesum”) used to purify the blood, but for which there are no indications and which has dangerous side effects—and many others. Most impressive of all, there was a 19 percent decline in hospitalization of pregnant women from 866/1,000 deliveries to 695, based on monitoring of 11 conditions where hospitalization was often recommended under Soviet protocols but rarely indicated under evidence-based protocols. Moreover, the average length of stay for these conditions fell from eight to 6.7 days.

In terms of hospital care for delivery, there were increases in the percentage of “normal” deliveries, with 90 percent of women in Zhezkazgan who recently gave birth indicating that they had had a normal, uncomplicated delivery and all women reporting that their child was born healthy. Even though the maternity hospital had a caesarian rate in the normal range before the pilot project started, caesarian births fell still further, from 9.7 percent of deliveries to 8.4 percent. There were also fewer episiotomies and other invasive procedures, such as “cervical examination” after childbirth. Consistent with the lower levels of complicated births, the average length of stay in the hospital for childbirth declined from 4.1 to 3.7 days.

Despite this significant progress, much work remains to be done to really demedicalize care by reinforcing the training done to date, with special attention to further reductions in unnecessary prenatal hospitalizations. The requirement that all pregnant women visit an internist, who then diagnoses various pathologies, needs to be reconsidered. Clear guidelines should be developed for obstetricians and family doctors who provide prenatal care to help them identify conditions that truly need to be managed by a specialist, rather than referring all women to internists.

Care should be Based on the Use of Appropriate Technology

The demedicalization of care was accompanied by some reductions in non-evidence-based technological interventions. The percentage of women having two or more ultrasounds fell by more than half, while the percentage having had one ultrasound increased quite significantly—a positive trend, since screening in the first half of pregnancy has some limited benefits—and the proportion with no ultrasound went from 12 to 26 percent. During hospitalization for delivery, there was also less use of ultrasound, with 80 percent of new mothers reporting not having one in 2003. There were large drops in the numbers of laboratory tests performed at the hospital: for example, the number of vaginal smears fell from 1,023 to just 24. And unnecessary procedures such as the administration of analgesic drugs, shaving pubic hair and enemas before childbirth were discontinued.

At the same time, some simple, low-cost approaches that are known to improve outcomes were introduced. The partogram—a previously unknown “tool” in Kazakhstan—was used in about three

out of four cases to manage labor and delivery, potentially contributing to fewer births with fetal asphyxia. Significant numbers of women had a partner with them during labor and delivery—rising from 16 percent in 2002 to 79 percent the following year—and all found it helpful. Moreover, the presence of a partner has been shown to reduce the length of labor, the need for pain relief and surgical delivery and to improve neonatal outcomes. Women began to choose their own delivery positions. While, prior to the pilot project, 81 percent of women gave birth flat on their backs, which makes delivery more difficult, that fell to 47 percent and virtually all women reported that they themselves had chosen their own delivery position. As already noted, there were fewer caesarian births, probably because women who had had a previous caesarian did not automatically have another one. The hospital moved from a sterile environment where visitors were not allowed to one which is simply “clean,” discontinuing the disinfection of rooms, wards, furniture and bedclothes—an extremely difficult transition because it involved convincing the SES not to impose fines and punishments for a non-sterile environment. Hospital staff were surprised that this merely “clean” environment did not result in increased complications after childbirth.

There is still a need to reduce the use of ultrasound further, to make use of the partogram universal, to encourage more women to give birth in more vertical positions, with a partner to help them. However, enormous progress was made during a one-year period.

Care should be Regionalized

Regionalization is the rational distribution of medical services in a geographic area, ensuring that services and facilities at all three levels (primary, secondary and tertiary) are accessible to the population, but are also distributed cost-effectively. The Zhezkazgan pilot worked on too small scale to have much impact on this. Nevertheless, it made small steps in that direction.

The underpinning of a regionalized system is to provide good access to care through primary health care facilities close to where people live. The situation in Zhezkazgan prior to the project, where prenatal care was concentrated in the hospital outpatient department, was inconsistent with good access to care. One of the major changes brought about by the pilot project was to shift most prenatal care from the hospital to the FGPs, effectively integrating it with other primary health care services provided at the community level. While only 19 percent of women said they had obtained their prenatal care from FGPs before the project, 66 percent did so after project implementation.

Another key principle of regionalization is to concentrate expensive equipment in one secondary or tertiary care facility, rather than duplicating it in every facility. While ZdravPlus provided minimal equipment to the hospitals, in recognition of the role that the Zhezkazgan Maternity Hospital should be playing as a referral site, it received a higher level of equipment than was given to Satpaev. More significantly, by linking the Safe Motherhood pilot site with health financing reforms—see Implications for the Cost of Care and Health Care Financing below—the hospital was able to produce savings that open the door to investing in an upgraded facility and equipment that could allow it to step into its appropriate role as a referral-level facility. The new payment systems need to be fully implemented to promote a more efficient distribution of services.

Considerable effort was made in the direction of an integrated network between outpatient care provided by FGPs for most (uncomplicated) pregnancies, inpatient and outpatient care provided in the hospital for women with complications, and inpatient care for delivery. As modern obstetrical practices take hold in Zhezkazgan and the concept of EBM gains recognition, these linkages need to be formalized through clinical guidelines adopted at the local level.

Care should be Evidence-Based

By introducing the MPS/PEPS program, evidence-based practices and the concept of EBM were introduced into obstetrical practice in Zhezkazgan. Much more work is needed, however, to help

leaders in the ob-gyn community understand EBM methodology, so they can continuously update their medical practices in the light of evidence from around the world.

Care should be Multidisciplinary

In Kazakhstan, which has a surplus of doctors, including specialists, it is difficult to shift care toward family doctors, midwives and nurses. A more realistic objective is to foster better collaboration between the different types of health workers. The pilot project sought to encourage such interdisciplinary collaboration by training doctors and midlevel staff, like nurses and midwives, to work in teams—a highly unusual approach in Central Asia. While the pilot project did not provide evidence that care actually shifted toward midlevel personnel, interviews with doctors at the hospital illustrated that they recognized that midlevel staff could play a larger role than that previously accorded to them.

Opening the door to broadening the range of providers involved in maternity care, the client survey showed that women became slightly more ready to accept family doctors and midlevel staff as care providers. By the end of the pilot project, more than nine out of 10 women thought that midwives could, or could “maybe,” provide prenatal care and almost two thirds thought likewise about family doctors providing care. Both before and after the pilot project, almost all women who had recently given birth favored midwives attending the delivery and attitudes toward family doctors’ attendance became significantly more positive, ending with 85 percent thinking a family doctor could attend, or “maybe” attend, childbirth.

Although this pilot encouraged linkages between ob-gyn and neonatal teams in the hospital, including a neonatologist in the obstetrical training and vice versa, if resources allow, the ideal solution in the future would be to train teams of ob-gyns, neonatologists, nurses and midwives in the continuum of care from labor to delivery and newborn care.

Care should be Holistic and Family-Centered

Pregnancy and childbirth are normal events and care should center on informing, motivating and involving the family and the community in ensuring care and support. Even before the project, almost all women reported being given information about pregnancy and childbirth and, after project implementation, virtually all women stated that they were satisfied with the amount of information they received. Nevertheless, there is room for improvement in terms of giving women information



about physical activity, sexual activity, smoking and contraception. A major priority, though, is to inform women and their families of the warning signs during pregnancy, which were not well known to women and, in certain cases, can make the difference between life and death.

The maternity hospital became far more family-centered once the pilot project was implemented. Almost nine out of 10 women had their own room for delivery, rather than having

to share, as in the past. The shift from a sterile environment to a simply “clean” environment, coupled with individual rooms, made it easier for family members and friends to visit and support the woman. A companion was present during labor and/or delivery in almost eight out of 10 cases, which all the women found helpful. Even at the end of the project, though, there was still considerable ambivalence about the presence of a partner—especially for childbirth itself—and

partners would often help the woman during contractions but not attend the actual birth. More work is needed, particularly with men, to encourage them to be with the woman throughout the process.

A variety of practices that promote bonding between mother and baby, and confer important health benefits on both, gained ground. All the new mothers said that they were allowed to hold their babies immediately after birth and 97 percent had skin-to-skin contact. Almost all mothers were advised to breastfeed the baby right after birth, and to feed the baby on demand rather than on a fixed schedule. After the birth, every woman in Zhezkazgan had her own room—without having to pay extra—and almost nine out of 10 new mothers said that relatives and close friends could visit them in the hospital.

Care should be Culturally Appropriate and should Involve Women in Decision-Making

ZdravPlus sought to make care culturally appropriate by conducting focus groups before starting the project, to find out about women's perceptions of the care provided at that time and seeking their opinions on the new WHO approaches. Key issues to emerge from the focus groups were the desire of women and their families to be more informed about pregnancy, childbirth and newborn care and to be treated with respect by health workers.

As already noted, the pilot project provided women with important information and, after project implementation, almost all said they were satisfied with the information they had received. A key element of the information given was to empower them to choose their delivery position, effectively putting them in charge of childbirth, rather than their being passive participants in a process managed by health workers. Once the pilot project was implemented, 97 percent of new mothers said they had chosen their delivery position themselves, as compared to only 19 percent a year earlier.

Women were more likely to report being treated with respect after project implementation, although this left room for improvement, particularly among pregnant women (as opposed to those who had recently given birth.) Pregnant women in 2003 said they were always treated with respect in 60 percent of cases, with another 36 percent saying they were usually treated with respect and two percent said sometimes. None reported that they were never treated with respect. Among new mothers in Zhezkazgan, 98 percent reported always being treated with respect and two percent said they were usually treated with respect—none said they were never treated with respect.

There were also increases in women's overall level of satisfaction with prenatal care, with 98 percent of women completely satisfied or satisfied—and just two percent partially satisfied. Satisfaction with hospital care during delivery also increased among new mothers, with 98 percent saying they were completely satisfied and two percent satisfied.

Implications for the Cost of Care and Health Care Financing

The implementation of the Safe Motherhood pilot project in Zhezkazgan demonstrated the potential for significant improvement in resource-efficiency at the Zhezkazgan Maternity Hospital, as well as in the overall health system. Demonstrating a reduction in both the number of hospital admissions and average length of stay for 11 monitored prenatal conditions speaks of the ability to positively influence the way certain clinical cases are treated, which in turn leads to an improvement in system efficiency and a reduction in unnecessary costs. The cost savings of this reduction in hospitalizations are estimated to be 13 percent of the overall costs of the 11 monitored conditions in the pre-implementation period. This is a significant cost savings resulting from the implementation of the Safe Motherhood program. While in the past, the hospital would have been penalized for a reduction in hospitalizations by receiving a smaller budget, because of new hospital payment systems being introduced in Kazakhstan, this did not occur. Rather, the hospital received an 11 percent increase in budget funding for the monitored conditions, indicating that facilities are able to implement these changes without loss to their overall budget. This then allows them to reinvest the savings in an area of hospital operations where they are needed.

While the financing systems in Kazakhstan are still in transition, the results of the Safe Motherhood pilot indicate that the introduction of reforms in the content of clinical care, designed to improve the quality of care through international, evidence-based approaches go hand-in-hand with the introduction of new hospital payment systems. Together, the advancement of health financing systems and the introduction of programs such as Safe Motherhood have a synergistic effect, promoting higher quality, more efficient and equitable care, while allowing for sustained reinvestment of cost savings to those areas of the health system that need them the most.

X. Postscript

There have been significant changes with respect to Safe Motherhood in Kazakhstan since the Zhezkazgan pilot began. Soon after the start of the pilot project, in December 2002, the Government of Kazakhstan adopted a new Perinatal Care Improvement Program, incorporating the new approaches as a matter of national policy and citing Zhezkazgan and Karaganda (ZdravPlus' second Safe Motherhood site) as models.

More recently, the two leading maternity care facilities in the country, the Mother and Child Health Center and the National Perinatal Center, both located in the commercial capital of Almaty, requested training on MPS/PEPC. ZdravPlus joined with WHO and UNFPA to support this training, conducted by international WHO consultants, with assistance from Zhezkazgan staff as co-trainers. These two “flagship” facilities are now integrating the new practices into their work and, once they have gained experience, they plan to train the staffs of other facilities. In September 2004, the Chief Gynecologist for the Ministry of Health and the director of the Mother and Child Health Center visited Zhezkazgan and were impressed with the facilities' everyday operations: modest, clean, well kept facilities, which concentrate on providing friendly, quality client-centered perinatal care.

The indications are that international approaches to Safe Motherhood are taking root in Kazakhstan, holding out the promise of making pregnancy and childbirth a safer, more woman- and family-friendly process, while also bringing cost benefits for facilities and the health system.

XI. Bibliography

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XII. Annex 1: Zhezkazgan Official Statistics

The table below presents official statistics from Zhezkazgan on some key indicators related to prenatal care and delivery, for the pre-implementation period and for the period that the new international practices on Safe Motherhood began to be implemented.

The number of births in Zhezkazgan is too small for the new international approaches to perinatal care to produce a statistically significant impact on rare events such as maternal and infant mortality, so these indicators have not been included in the body of the report.

In light of the increase in the infant mortality rate shown in the table, it should be noted that the Safe Motherhood program could not be expected to show an impact on this indicator, since infant deaths include all those in the first year of life—and not only in the first few days. (It should also be noted that Kazakhstan still uses the Soviet definition of infant mortality, which produces substantially lower figures than the international definition.) It is encouraging, however, that the perinatal mortality rate—which could have been affected by the new program—declined. Nevertheless, it is questionable whether the decline is statistically significant and the extent to which it can be attributed to the Safe Motherhood program.

Zhezkazgan Official Statistics		
	July 2001 - June 2002	July 2002 - June 2003
Maternal mortality	1	0
Perinatal mortality	18.8/1,000	16.8/1,000
Infant mortality	14.8/1,000	21.2/1,000
Number of births	1,445	1,512
Caesarian births	10%	8.1%
Episiotomies	12.5%	4.3%
Induced labor	12.1%	11.8%
Stimulated labor	15%	8%
Births with postpartum bleeding	0.9%	1.5%
Births with ruptures of the perineum	3.3%	3.2%
Number of women obtaining prenatal care	1,639	1,687
Average number of prenatal visits	12	6
First trimester enrollment in prenatal care	63.7%	63.7%
Percentage of pregnancies classified as “normal”	12.0%	21.4%